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ABSTRACT

These five study guides present ideas for activities based on museum exhibition themes. The learning activities are designed for coordination with museum visits, but may be adapted for independent use. Activities appropriate for preschool and elementary levels are indicated. Exhibition themes include: (1) "Space Exploration," which explores the built environment and building's space; (2) "Warhol's Myth," which considers how American media myths reveal shared beliefs and experiences; (3) "Puppets," which introduces the art of Mister Rogers, Jim Henson, and other puppet masters; (4) "Riverscape," which re-enacts the hustle and bustle of a Pittsburgh workday of the past, for instance, children steer a boat down a theater-like set, loading fruits and vegetables, and selling them in a storefront; and (5) "Looking at You: Urban X-Ray/Self-Portrait/Stuffee/Heart Works" which views portraits from inside and outside the body and instructs in the care and feeding of the body. The guides include background information, instructions, suggested projects, worksheets, reproducibles, and when appropriate, musical scores, poetry, and illustrations. (MM)

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Space explorations Teacher's Guide

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Let the play begin

Play is a child's work. The Pittsburgh Children's Museum is dedicated to providing children with exciting environments for active learning. This series of guides will help teachers stimulate their students learning through play. Here are strategies to make learning fun before, during, and after your visit to The Children's Museum.

Feel mind and body working together to navigate a two-story maze reaching up into the rotunda. Explore the buildings space with your eyes, mind, and imagination.

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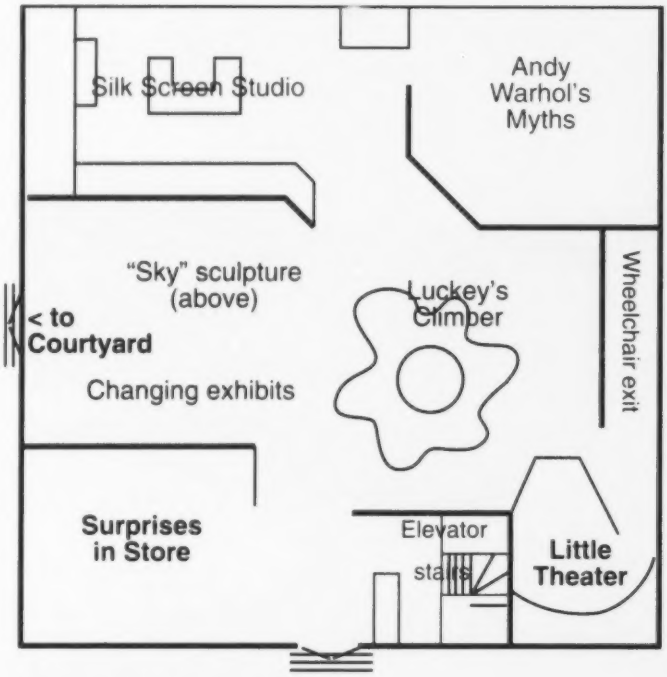

FIRST FLOOR
Rotunda

The Pittsburgh Children's Museum

Funded by the Vira I. Heinz Endowment.
Susan K. Donley, author, illustrator, designer; Lois Winslow, project director.
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A word to teachers

Think of this guide as a menu of ideas from which to choose activities to meet your own instructional objectives—you won't have time to do or even read everything here! Several navigational features will help you find the information you need at a glance:

- ✓Learning activities are grouped for appropriateness before, during, or after your museum visit. Consider doing one activity from each grouping so that your students are prepared for their visit and able to connect their museum and classroom learning.
- ✓Titles of learning activities are literally written as activities. Skim through them quickly to find activities that suit you.
- ✓Activities appropriate for various ages are marked:

preschool (three–five-year-olds)

early elementary (kdg.–second grade)

elementary (third grade and older)

But don't let these age designations stop you from adapting *any* idea that suits your goals.

The worksheets in this guide are not available at the museum. If you use them, make copies for your students and bring them with you. Don't forget pencils!

Theme

Space Explorations brings under one theme three exhibits in the towering rotunda of the Pittsburgh Children's Museum: *Luckey's Climber*, the *Sky* sculpture in the rotunda, and The Pittsburgh Children's Museum building itself. *Luckey's Climber* is hard to miss, but visitors often overlook the architecture of the Old Post Office building and the wonderful *Sky* environmental sculpture that hovers in the rotundas upper reaches. These diverse exhibits share the theme of exploring the spatial environment and conveniently share the same area in the museum. On *Luckey's Climber* children use both physical and mental skills to navigate space. The Old Post Office is one of Pittsburgh's few examples of enclosing vast interior space with a classical dome. *Sky* celebrates this space with imagery from outer space. The art of sculpture uses space, as well as line, shape, color, and texture.

The Pittsburgh Children's Museum also offers *Terminal Café*, a dramatic performance about the environment. Call 322-5059 to schedule an in-school presentation.

Classroom connections

Preschool

Although most children realize *Luckey's Climber* is quite safe, some may be afraid of climbing so high. Practice ahead of time—detailed below—should calm their fears. Most preschoolers need little motivation to start climbing, but might need encouragement to try something new. The activities suggested involve them in ***cooperative problem-solving*** using ***language***, ***creative dramatics***, and ***gross-motor skills***. Besides being a great ***kinesthetic experience*** giving them a thrilling view from above, the Climber is an ideal review of ***body parts*** and ***directional and spatial vocabulary***. Children also develop ***spatial skills*** in solving the maze. Preschoolers can relate architecture to their own ***building*** experiences by identifying the ***shapes*** the architect used in the Old Post Office building. ***Science*** and ***visual arts*** vocabulary can be used to name the parts of *Sky*. ***Colors***, ***shapes***, and ***textures*** are manipulated as they continue exploring space.

Elementary

Elementary children enjoy releasing energy on the Climber and readily tackle ***spatial problem solving*** on the maze. As they see their world from a new vantage point, you can challenge them to imagine other three-dimensional ***environments*** from different points of view. By this age students are ripe for studying ***architecture*** using ***science*** to figure out how the Old Post Office stands up and ***social studies*** to discuss how the building and its ***neighborhood*** have changed over time. Earth science images in *Sky* lead into the detective work of ***art criticism***—deciphering the meaning of a work of art. Back in the classroom, students ***solve science***, ***social studies***, and ***visual arts*** problems to create their own environments.

Luckey's Climber

Before your visit

Preparing pre-schoolers for *Luckey's Climber.*

Children instinctively know what to do on *Luckey's Climber—climb*! Most children realize that fact the enclosed structure is quite safe, but some preschool children may be afraid of climbing so high. So, before visiting the museum, build children's confidence in their ability to climb on classroom slides, ladders, and monkey bars. Review the names of the body parts used to go through the maze and directional/spatial vocabulary: up, down, over, under, left, right, top, bottom, etc. Just before using the Climber review some safety rules about taking turns and counting the number of children who are on the Climber.

Tell a story or read a poem to encourage creative play on *Luckey's Climber.*

Add a verbal dimension to students kinesthetic experience of the Climber by telling a story like *Jack and the Beanstalk* or *The Spooky Old Tree* in the classroom before your visit. Just a brief reminder will encourage children to act out the story—or any other theme you may be studying (the zoo, circus, medieval times, the rain forest, etc.)—on the Climber. Below are poems that may be used before, during, or after visiting *Luckey's Climber.*

Every time I climb a tree[1]

Every time I climb a tree
Every time I climb a tree
Every time I climb a tree
I scrape a leg or skin a knee
And every time I climb a tree
I find some ants
Or dodge a bee
and get the ants
all over me

Every time I climb a tree
Where have you been?
They say to me
But don't they know that I am free
Every time I climb a tree?
I like it best to spot a nest
That has an egg
Or maybe three
And then I skin
The other leg
But every time I climb a tree
I see a lot of things to see
Swallows rooftops and TV
And all the fields and farms there be
Every time I climb a tree
Though climbing may be good for ants
It isn't awfully good for pants
But still its pretty good for me
Every time I climb a tree.

–David McCord

Teach children this Danish nursery rhyme about cats climbing a tree and let them pretend to be cats on *Luckey's Climber.* The children can learn and repeat the Danish line *kritte vitte vit bom bom:*

Two cats were sitting in a tree,
kritte vitte vit bom bom
a cat called Lew,
a cat called Lee,
kritte vitte vit bom bom.
Now follow me,
said Lew to Lee,
kritte vitte vit bom bom,
for I no longer like this tree,
kritte vitte vit bom bom!

So Lew and Lee
climbed down the tree,
kritte vitte vit bom bom.
Once down the tree to Lew said Lee,
kritte vitte vit bom bom,
Oh, Lew, I rather liked that tree!
kritte vitte vit bom bom.
So Lew and Lee climbed up the tree,
kritte vitte vit bom bom!

–*N.M. Bodecker, trans*

A-maze your classroom!

You can continue the theme of mazes in your classroom in several ways. Set up a maze in classroom using chairs and tables to create an obstacle course. Ask children to demonstrate "under," "over," "through," etc. in the maze. Ask one student to be the play-by-play sports announcer who describes what is happening to the rest of the class as another child navigates the obstacle course. Design mazes on paper, then trade to let another child solve the puzzle. Create a maze with blocks and let toy cars or figures go through the maze. If the class has a pet hamster or guinea pig, put food at one end of the maze and see if the animal can navigate the maze to find it. Be sure that the maze is not precarious so the animal does not topple it and get hurt.

During your visit

Move through the Climber like another creature.

As the children climb, encourage them to change identities and move through the maze like ants in an ant hill, worms under the ground, spiders in a web, bats in a cave, moles underground, or mice in the walls of a house. Let children take turns calling out animals for the children on the Climber to act out.

After your visit

Recreate the complex life of a tree.

Before class, glue 2 X 18-inch brown paper strips down the centers of 12 X 18-inch white drawing paper. Read the poem "Every time I climb a tree." Ask children to close their eyes and imagine themselves climbing a tree. What would they be feeling? What would they see? Hear? Smell? Have children draw themselves climbing a tree and all the things they might see. [The brown paper trunk is effective in getting children to draw the structure of a tree with trunk, branches, and leaves without resorting to the common stereotype lollipop trees.]

Construct an imaginary three-dimensional environment.

Ask students to name animals who build in their natural environments: birds, burrowing animals, ants, beavers, bees, etc. Then ask them to choose an animal and elaborate on its building scheme to design an imaginary super tree house, underground ground hog city, an ant hill farm, an underwater beaver lodge, a bat or bear cave condo, a spider and bugs living in a garden apartment, or a bee hive high rise. Two possible methods for creating their environments include:

- Two-dimensional method: Create an architectural drawing called a section, which is a cut-away or x-ray view of a building. A useful way to think of a section is how a building would look if one of its outside walls was removed or made of glasslike a doll house. Use 18 X 24-inch drawing paper and fine drawing tools, like small crayons, fine-tipped markers, or colored pencil and encourage as much detail in the drawings as possible.
- Three-dimensional method: Use a tall, skinny box as a diorama to built the environment in. Use cut, folded, and curled construction paper, cardboard, string, and found objects to build the environment and the creatures in it.

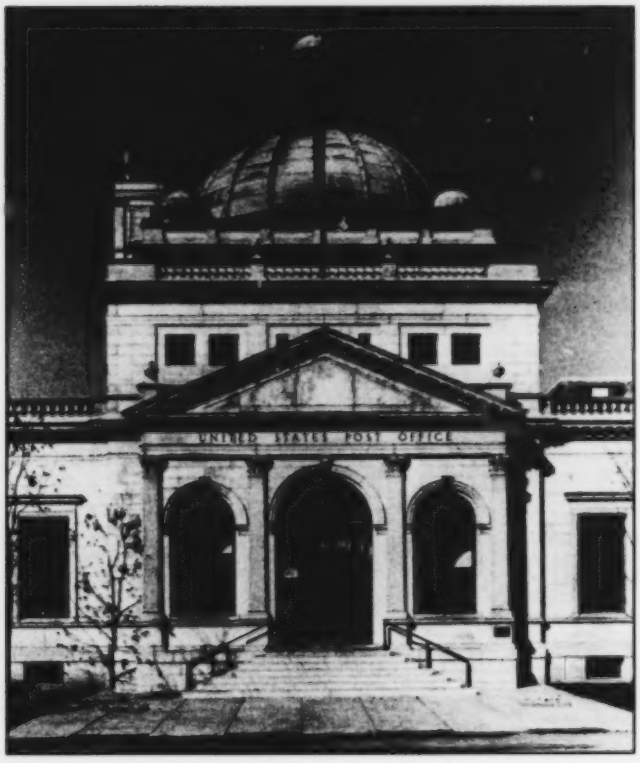
Design a play ground "make-over."

Now that they have been inspired by *Luckey's Climber*, ask students to dream up new playground equipment for their school. Provide large paper for drawings of a new playground. Or have them create a three-dimensional model of a new climber for the playground out of cardboard, found materials, and pre-cut paper strips. They can build their climber design from a cardboard base or build it inside a cardboard box so they can attach parts to the walls and ceilings, as in *Luckey's Climber*.

The space you are in: The Old Post Office

Background information

The building that now houses The Pittsburgh Children's Museum was constructed for $900,000 in 1897 as the central post office of what was then an independent city. The city of Allegheny was established in 1788 as



a square of blocks and streets (now Allegheny Center) surrounded by a commons for grazing cattle and sheep. Allegheny Town was supposed to be the Allegheny County seat, but since it was still just a plan on paper, Pittsburgh across the Allegheny River became the temporary county seat. When Pittsburgh held on to the title, a century of rivalry between the two cities began.

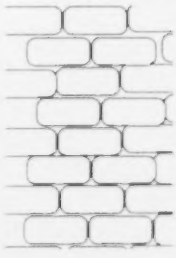
The Allegheny Post Office overlooked the Allegheny town square with its fountain. Its neighbors were the Allegheny City Hall (where the old Planetarium now stands), Carnegie Library, a vast market house where farmers came to sell t heir goods, and a whole variety of shops, including the Boggs and Buhl Department Store. Serving a city of over 100,000 people, the Allegheny Post Office was busy at the center of downtown hustle and bustle. It was designed to be an impressive building to show the power of government, but not so huge that it intimidated its customers. The public only glimpsed the awesome dome inside through a screen when they came to do business. Only postal workers used the inner core of the building: the public was restricted to the outside corridors.

In 1907 Allegheny became part of Pittsburgh and gradually lost its own downtown character. By the late 1960s, plans were made to tear down most of the buildings, including the post office in Allegheny Square, and to replace them with the apartments and mall of today's Allegheny Center. Pittsburgh History & Landmarks Foundation raised money to save the building and used it as The Old Post Office Museum. They created the garden court—which you may visit—with artifacts from demolished Pittsburgh buildings, including huge sculptures rescued from the Manchester Bridge. The Pittsburgh Children's Museum moved in to share the Old Post Office in 1983 and took over the entire space in 1985.

Before your visit

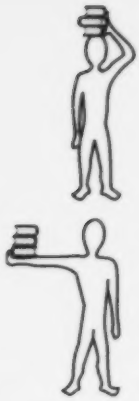
Experience how this building stands up.

Gravity can either hold a building together (stones stacked in a wall stand without mortar) or tear it apart (the same wall tumbles if a careless opening is made in it). All buildings must be constructed to manage gravity so that it works to the buildings benefit, not its destruction. One of the best ways to learn about how buildings manage the stresses of gravity is to feel them in your own body. Students can do the following exercises in class before discussing how the structures in the Old Post Office have allowed it to stand so many years:



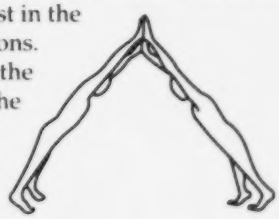
Masonry wall. In a masonry structure, bricks or stones are piled up to control and use the crushing force of compression. The pressure of each stones weight is absorbed by the block below it until all the pressure is absorbed by the ground. All the stones are in **direct equilibrium** when they are balanced carefully on top of each other as in a wall.

Column. Creating an opening in a masonry wall disturbs the direct equilibrium and the wall tumbles. **Indirect equilibrium** must be created with

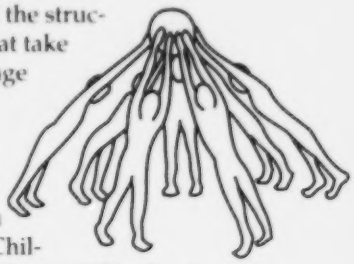


beams and columns. The beam transfers the weight of the wall to the columns, which safely carry the weight indirectly around the opening to the ground. To feel how a column works have two students hold a stack of books as shown in the diagram. Who lasts longer: the column or the cantilever? At The Children's Museum try to identify columns that bear weight and columns that are just decorative. How can you tell the difference?

Arch. An **arch** is another way to use indirect equilibrium to create an opening in a masonry wall. An arch uses compression to balance its own weight and the weight piled on top of it. An arch works by transferring weight through each of its stones, then into the wall beside it and the ground under it. It is easier to feel how stress travels through an arch than it is to imagine it: have pairs of students build an arch by leaning against each others hands. Ask them to slowly step backwards as far as they can without collapsing the arch. Stand quietly for a minute. Ask where in their bodies they feel the most stress. Most people are surprised to feel some stress in their arms, but most in the Achilles tendons. Look around the interior and the exterior for arches at The Children's Museum.



Dome. A **dome** works like many arches arranged in a circle. Start to make a dome by having two people make an arch, leaning their hands against a large rubber ball (like a basketball). Keep adding pairs around the ball until there is no more room. What would happen if someone took the ball away? Once built, domes are very strong, but since they are difficult to construct, we do not find them very often. An igloo is a good example of a dome. At the museum explain that the space enclosed by a dome is called a **rotunda**. Any ideas why? [Think about other similar-sounding words.] What are some of the structures that take advantage of the lofty spaces of the rotunda at The Children's Museum? [Luckey's Climber," "Sky."]



Decipher architectural clues hidden in stone.

While standing in the rotunda, ask students:

What supports the ceiling in this room? What do you think this room was originally used for? Why are the stairs uneven in the center? Which columns are structural (support weight) and which are ornamental (just for decoration). Where do you think the space was divided between the public and the postal workers? Try to find clues showing where the screen was that divided the public space from the work space.

Take the class outside (or wait until you are leaving the museum) and ask:

What shapes can you see making up the outside of The Children's Museum (point out the progression of geometric shapes—a large rectangular box topped by a smaller rectangular box topped by a square box topped by a half-sphere dome topped by a cylinder and another half-sphere dome). *Which buildings do you think were the post office's neighbors before Allegheny Center was built* (Buhl Planetarium and the Carnegie Library)? *What are the clues? If the Old Post Office could talk, what do you think it would say about the changes it has seen and experienced?*

After your visit

Write The Old Post Office's autobiography.

If weather and time permit, this makes a good quiet-down activity right before leaving the grounds of the museum, otherwise it is an effective post-visit activity for the classroom.

Ask students to put themselves in the place of the Old Post Office (The Pittsburgh Children's Museum): What is it like to be a senior citizen building? What was it like when you were first built? How have you changed over the years? How did you feel about the changes? Was there ever a time when you were afraid? proud? angry? hurt? What do you think about the people who have visited you? What is the expression on your face? Write a short story of your life, including the best and worst of your memories.

Redesign a house for the Old Woman Who Lived in a Shoe.

Living in unsuitable environments can be very stressful for people, who sometimes react in unacceptable ways. What happened when the Old Woman tried to live in a shoe with her many children:

There was an old woman who lived in a shoe,
She had so many children she didn't know what to do;
She gave them some broth without any bread;
She whipped them all soundly and put them to bed.

Ask children to use all they've learned about architecture and environment to design the Old Woman a deluxe shoe apartment that will make her less frustrated and abusive with her children.

Create structures with blocks.

Use building blocks to review the basic kinds of structures that allow buildings to stand up: masonry walls, columns and beams, arches, etc. See how tall students can build a structure with blocks. Can they try to build the Old Post Office? Where do problems start to set in [domes are difficult to build with blocks]. Find examples of these structural types in use to hold up your school.

Adapt this activity to two dimensions. Supply students with a variety of pre-cut construction paper geometric shapes to assemble on a piece of background paper. Or cut geometric shapes out of cardboard, sponge, or potato to make stamps for printing a building (see *Warhol's Myths* teachers guide for more information). Arrange the buildings into a town for display as a mural.

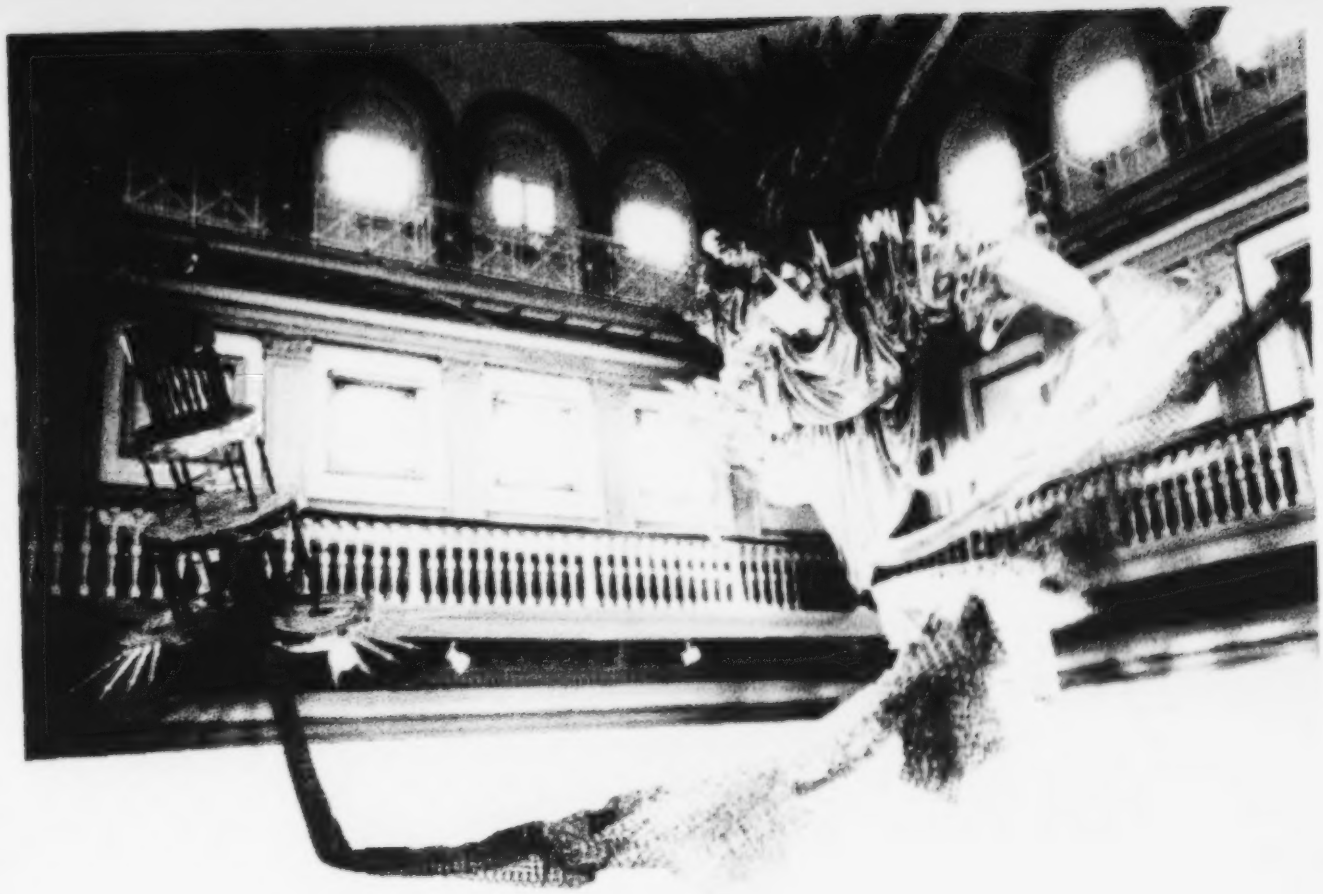
Allegheny Square, c. 1900. Carnegie Library, Pittsburgh.

My Story

as told by The Old Post Office to

Your name

When I was first built in 1897, I never expected to see so much change in my life....



Heads up in the Sky

Before your visit

Background about *Sky*.

Sky, hanging in the rotunda of The Pittsburgh Children's Museum, was designed especially for this space in 1988 by Pittsburgh artist Christopher Anselmo Priore (American, b. 1959). It is a painted mixed media sculpture that includes painted sections of building. At 42 feet high, 265 feet wide, 36 feet deep, *Sky* is the second largest hanging sculpture in Pittsburgh (the Carnegie's Alexander Calder mobile is the largest). The sculpture's label notes: "Priore's witty and whimsical interpretation of the universe fills 40,000 cubic feet of space. It honors The Children's Museum's magnificent architecture, drawing attention to the space it so dramatically fills. At the same time, its images from the heavens—some familiar, others less so—invite viewers to join in the timeless and fanciful tradition of stargazing."

During your visit

Learn to look at art.

Unraveling the secrets of an original work of art can be great fun for students, who are rarely given the opportunity to do so. Help your students explore *Sky* with the following process called art criticism, a term that sounds like it couldn't possibly be fun!. Art criticism—the process of unraveling the meaning and value of an artwork—involves four steps: description, analysis, interpretation, and evaluation. As with all the activities in this teachers guide, use as much of this process as you wish and adapt freely.

Describe: Without telling them its name, ask students to look at the sculpture carefully for one minute in silence (without trying to guess what they are looking at or whether they like it or not—that would be jumping to conclusions). Now have them turn away from the sculpture and discuss: Without looking back, lets test your observations. What familiar things did you see in the sculpture? Describe the parts of the

sculpture that seemed unfamiliar? What color were they? What words would you use to describe their texture? Lets turn around and look again. What else do you see now that we missed the first time? What other corrections should be made to our observations? What shapes, colors, and textures did we miss talking about? What materials did the artist use to create this sculpture?

Analyze: Where is the focus of action in this sculpture? How has the artist drawn your eye to this spot? Why has the artist drawn your eye to this spot? Where is the front of the sculpture? the back? What is in the middle? What are the most important art tools in this sculpture—line, shape, color, or texture?

Interpret: What is happening in this sculpture? What happened just before? What is about to happen next? Where is the scene taking place? What kind of day is it? What season? What sounds would go well with this sculpture? What smells? What feelings does the sculpture make you feel? What name would you give to this sculpture? The artist Christopher Priore calls it *Sky*. How close did we come to guessing the artist's meaning? Now that you know the title, do you want to change your ideas about what is happening? If you were a reporter, what questions would you ask Christopher Priore about *Sky*?

Evaluate: Would you call this sculpture realistic? Why or why not? How easy is this sculpture to understand? How could the artist have made it easier for you to understand? What are the reasons he might have decided not to do it that way? Why do you think Christopher Priore created *Sky*? How do you think he feels about the sky? How do you feel about *Sky*? Would you like to own *Sky*? Why or Why not? Would it fit well in your house? If you would not like to own *Sky*, why do you think The Pittsburgh Children's Museum had it created for them?

Mention that when the class is visiting the Museum's second floor, they will be able to view *Sky* at its own level (you may wish to hold this discussion from the second floor to eliminate some of the distractions of the Climber and special exhibits. If you plan to create one of the individual or group environmental sculptures later in the classroom, you might mention that to students now before continuing your visit, while their interest is high.

After your visit

Create a classroom environmental sculpture.

Students can work together to create a large scale sculpture—a man-made environment—in a corner of the classroom or by hanging it from the ceiling. Build your environment from found materials—"junk"—like Christopher Priore did: cardboard boxes, tubes, spools, packing materials, construction materials, household junk, paints, and paper. Talk about the theme you might want to use for your sculpture. Suitable themes for an environmental sculpture include: the seasons; weather; night/day; the elements—fire, water, air, wind, earth, etc. At the end of this section are poems on some of these themes to help inspire sculpture imagery. Other possibilities result from looking at a common environment from a different point-of-view: an insects view of a garden (see "Green Stems" below), or a fish's view of the ocean. Divide the idea into logical parts, and assign groups of students to work on each part. It might be helpful to think of this project as a three-dimensional mural big enough to walk into.

Another way to involve everyone would be to do four different sculptures in each corner of the room. The sculpture can have different themes or the same theme, but different interpretations.

Create a miniature environmental sculpture.

Each student can be in charge of their own environment if they work in miniature scale, diorama-style, within a cardboard box. Use the same kinds of found materials only on a smaller scale and glue them into the box. Or use only cut, torn, and folded construction paper to create the environment. Cutting holes in the top, front, or sides of the box will allow light to enter and can create dramatic backlight or spotlight effects.

Create a "Night Sky" sculpture.

Create an environmental sculpture (see above) of the night sky. Darken the classroom while you work and add spotlights, fluorescent paint, cellophane, shiny foil papers, etc. to the materials available for building. Project shadows on the walls as part of the environment. Find or write some night-time stories to read while sitting in the environment. Talk about what makes the night-time scarier than day-time. This activity is a natural for Halloween! Following are some poems about night to inspire the class.

Nighttime

The night will never stay[1]

The night will never stay,
The night will still go by,
Though with a million stars
You pin it to the sky;
Though you bind it with the blowing wind
And buckle it with the moon,
The night will slip away
Like a sorrow or a tune. —*Eleanor Farjeon*

The Moon[2]

The moon has a face like the clock in the hall;
She shines on thieves on the garden wall,
On streets and field and harbor quays,
And birdies asleep in the forks of the trees.
The squalling cat and the squeaking mouse,
The howling dog by the door of the house,
The bat that lies in bed at noon,
All love to be out by the light of the moon.
But all of the things that belong to the day
Cuddle to sleep to be out of her way;
And flowers and children close their eyes
Till up in the morning the sun shall arise.
—*Robert Louis Stevenson*

Windy Nights[2]

Whenever the moon and stars are set,
Whenever the wind is high,
All night long in the dark and wet,
A man goes riding by.
Late in the night when the fires are out,
Why does he gallop and gallop about.

Whenever the trees are crying aloud,
And ships are tossed at sea,
By, on the highway, low and loud,
By at the gallop goes he;
By at the gallop he goes, and then
By he comes back at the gallop again.
—*Robert Louis Stevenson*

Night Comes[3]

Night comes
leaking
out of the sky.

Stars come
peeking.

Moon comes
sneaking
silvery-sly.

Who is
shaking,
shivery-
shaking?
Who is afraid
of the night?

Not I. —*Beatrice Schenk de Regniers*

The Star[3]

Twinkle, twinkle, little star,
How I wonder what you are!
Up above the world so high,
Like a diamond in the sky.

As your bright and tiny spark,
Lights the traveler in the dark
Though I know not what you are,
Twinkle, twinkle, little star.
—*Jane Taylor*

The Middle of the Night[3]

This is a song to be sung at night
When nothing is left of you and the light
When the cats don't bark
And the mice don't moo
And the nightmares come and nuzzle you
When there's blackness in the cupboards
And the closet and the hall
And a tipping, tapping, rapping
In the middle of the wall
When the lights have one by one gone out
All over everywhere
And a shadow by the curtains
Bumps a shadow by the chair
Then you hide beneath your pillow
With your eyes shut very tight
And you sing
There's nothing sweeter than
The middle of the night.
I'm extremely fond of shadows
And I really must confess
That cats and bats don't scare me.
Well, they couldn't scare me less
And most of all I like the things
That slide and slip and creep.
It really is surprising
How fast you fall asleep.
—*Karla Kuskin*

Seasons and weather

The Months[3]

January brings the snow,
Makes our feet and fingers glow.
February brings the rain,
Thaws the frozen lake again.
March brings breezes loud and shrill,
Stirs the dancing daffodil.
April brings the primrose sweet,
Scatters daisies at our feet.
May brings flocks of pretty lambs,
Skipping by their fleecy dams.
June brings tulips, lilies, roses,
Fills the children's hands with posies.
Hot July brings cooling showers,
Apricots and gillyflowers.
August brings the sheaves of corn,
Then the harvest home is borne.
Warm September brings the fruit,

Sportsmen then begin to shoot.
Fresh October brings the pheasant,
Then to gather nuts is pleasant.
Dull November brings the blast,
Then the leaves are whirling fast.
Chill December brings the sleet,
Blazing fire, and Christmas treat.

—Sara Coleridge

Spring[1]

I'm shouting
I'm singing
I'm swinging through trees
I'm winging sky-high
With the buzzing black bees.
I'm the sun
I'm the moon
I'm the dew on the rose.
I'm a rabbit
Whose habit Is twitching his nose.
I'm lively
I'm lovely I'm kicking my heels.
I'm crying
Come dance to the freshwater eels.
I'm racing through meadows
Without any coat
I'm a gamboling lamb
I'm a light leaping goat
I'm a bud
I'm a bloom
I'm a dove on the wing.
I'm running on rooftops
And welcoming spring!

—Karla Kuskin

Summer Sun[2]

Great is the sun, and wide he goes
Through empty heaven without repose, And in
the blue and glowing days
More thick than rain he showers his rays.

Though closer still the blinds we pull
To keep the shady parlor cool,
Yet he will find a chink or two
To slip his golden fingers through.

The dusty attic spider-clad
He, through the keyhole, maketh glad;
And through the broken edge of tiles
Into the laddered hayloft smiles.

Meantime his golden face around
He bares to all the garden ground,
And sheds a warm and glittering look
Among the ivy's inmost nook.

Above the hills, along the blue,
Round the bright air with footing true,
To please the child, to paint the rose,
The gardener of the World, he goes.

—Robert Louis Stevenson

Harvest Home[3]

The maples flare among the spruces,
The bursting foxgrape spills its juices,
The gentians lift their sapphire fringes
On roadways rich with golden tinges,
The waddling woodchu cks fill their hampers,
The deer mouse runs, the chipmunk scampers,
The squirrels scurry, never stopping,
For all they hear is apples dropping
And walnuts plumping fast and faster;
The bee weights down the purple aster
Yes, hive your honey, little hummer,
The woods are waving,
Farewell, Summer.

—Arthur Guiterman

I Heard a Bird Sing[3]

I hear a bird sing
In the dark of December
A magical thing
And sweet to remember.

We are nearer to Spring
Than we were in September,
I hear a bird sing In the dark of December.

—Oliver Herford

Environments

Green Stems[3]

Little things that crawl and creep
In the green grass forests,
Deep in their longstemmed world
Where ferns uncurl
To a greener world
Beneath the leaves above them;
And every flower upon its stem
Blows above them there
The bottom of a geranium,
The back side of a trillium,
The belly of a bumblebee
Is all they see, these little things
Down so low
Where no bird sings
Where no winds blow,
Deep in their long-stemmed world.

—Margaret Wise Brown

[1] Clifton Fadiman, ed. *The World Treasury of Children's Literature* (Boston: Little, Brown, and Company, 1984).
[2] Robert Louis Stevenson, *A Child's Garden of Verses* (New York: Grosset & Dunlap, 1957).
[3] Jack Prelutsky, ed., *Random House Book of Poetry for Children* (New York: Random House, 1983).

A PIECE OF PITTSBURGH

Warhol's Myths
Teacher's Guide

Let the play begin!

Play is a child's work. The Pittsburgh Children's Museum is dedicated to providing children with exciting environments for active learning. This series of guides will help teachers stimulate their students' natural impulse to learn through play. Pick and choose from our suggestions to find activities that suit your class goals before, during, and after your museum visit.

Consider how American media myths reveal our shared beliefs and experience. Experiment with silk-screen printing—the process that Pittsburgh artist Andy Warhol made famous.

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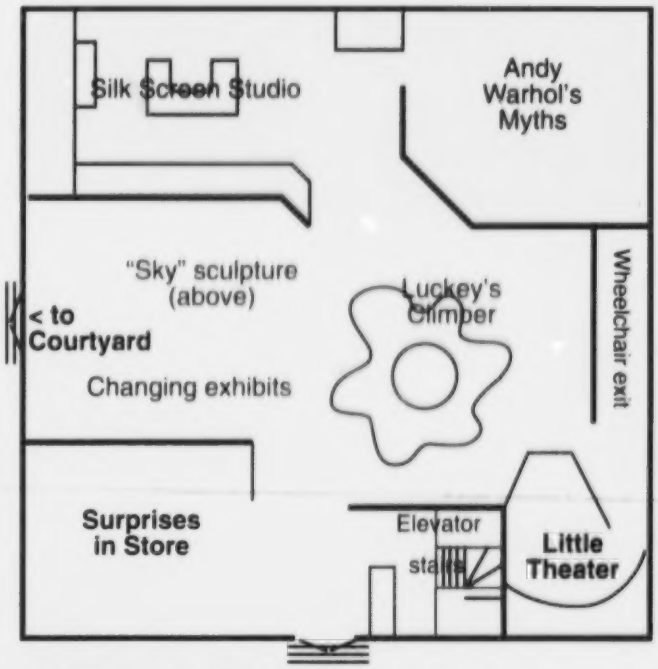

FIRST FLOOR
Rotunda

The Pittsburgh Children's Museum

Funded by the Vira I. Heinz Endowment.
Susan K. Donley, author, illustrator, designer; Maureen Albano, co-author; Lois Winslow, project director.

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A word to teachers

Think of this guide as a menu of ideas from which to choose activities to meet *your own* instructional objectives—you won't have time to do or even read everything here! Several navigational features will help you find the information you need at a glance:

- ✓Learning activities are grouped for appropriateness before, during, or after your museum visit. Consider doing one activity from each grouping so that your students are prepared for their visit and able to connect their museum and classroom learning.
- ✓Titles of learning activities are literally written as activities. Skim through them quickly to find activities that suit you.
- ✓Activities appropriate for various ages are marked:

preschool (three–five-year-olds)

early elementary (kdg.–second grade)

elementary (third grade and older)

But don't let these age designations stop you from adapting *any* idea that suits your goals.

The worksheets in this guide are not available at the museum. If you use them, make copies for each of your students and bring them along on your visit. And don't forget pencils!

Theme

Myths and heroes of today and the past, of our families and other cultures.

Classroom connections

The *Myths* gallery introduces the style and themes of one of Pittsburgh's most notable artists, Andy Warhol. Next door in the *Silk Screen Studio*, children try the printmaking method Warhol brought into contemporary art.

Preschool

Preschool children love recognizing the characters in the *Myths* gallery. They are not yet ready to consider Pop Art and the meaning of myths. However, they are able to appreciate the prints as "pictures a famous artist from ***Pittsburgh*** made of his ***heroes***" and to discuss who some of their own heroes are and why. Make the transition to the silk screen studio by explaining that Andy Warhol printed these pictures exactly how they will be printing in the next room. If you have ***printed*** or ***stamped*** in class, make the connection that just as they printed shapes again and again, artists use ***printmaking*** to make many copies of their pictures. The two galleries allow children ***hands-on manipulation*** of materials as they consider basic themes in ***character values*** and ***education***.

Elementary

Elementary students can make connections to heroes in ***literature***, and between ***multicultural*** myths that further explain what people think is important. Through activities in this guide they use ***language arts***, ***creative dramatics***, and ***art skills*** to build on ***character*** and ***value education*** themes introduced in the gallery. Students will also use the ***art*** disciplines of ***printmaking***, ***drawing***, ***art history***, and ***art criticism*** as they explore the methods, style, and message of Warhol's work.

Background information on Andy Warhol

Andy Warhol was born in 1928 in the Soho section of Pittsburgh. He attended Schenley High School from 1942 to 1945, when he entered Carnegie Tech (now Carnegie-Mellon University). After graduating in 1949, Warhol left Pittsburgh for New York where he did extremely well in commercial art.

Warhol started painting in 1958-60 in the prevailing art style of Abstract-Expressionism, where artists painted huge canvases with color, shape, line, and texture for their own sake, not to create any recognizable subject. Andy Warhol brought his commercial art background to his paintings, and vice versa, incorporated some of his earliest paintings into windows he was decorating for a big Manhattan store.

Warhol's early "Pop Art" paintings in 1960, like "Coke bottle" and "200 Campbell soup cans," were hand-painted with brushes, just like other painters were doing. But painting with a brush took a lot of time on a large canvas and didn't produce the flat machine-made commercial look Warhol wanted. In early 1962, he looked into the possibilities of using silk-screen printing. He found he could use photographs to make the stencil, working very much like he had as a commercial artist. Other artists, gallery owners, and art critics were bothered by his work's "commercial" look and the fact that he used a screen over and over again to make multiples of his work.

Warhol used silk screening to experiment freely without spending time simply applying paint on canvas. His subjects were people or objects that everyone had seen many times before. But by treating ordinary subjects in unexpected, intense colors and bold shapes, he jolted viewers into seeing his subjects in new ways. His work looked flat without shading or perspective. Backgrounds were simple to isolate subjects like "Liz," "Marilyn," or the "Coke bottle" as modern myths or idols out of their everyday surroundings. The silk screen process allowed Warhol to repeat images just as they appeared on a supermarket shelf or in a showroom of televisions all tuned to the same show. Warhol and other artists who took their images from popular culture were called "Pop Artists."

All around us are images designed to communicate, persuade, entertain, sell, or decorate. Even the products these images advertise are designed with shapes and colors to make them appealing. These images are everywhere, jumping out at us from road signs, television, newspapers, and supermarket shelves. To carry on our lives we become adjusted to all this "visual noise" and learn to block most of it out.

Andy Warhol and other Pop Artists used several methods to make us pay attention to what our world has become: large scale to grab our attention; repetition, a method used by TV commercials to make us remember things we are not even interested in; anonymity to hide the originality of the artist behind the "everything-looks-the-same" look of popular culture. Critics asked whether the Pop Artists were fascinated or disgusted with the kinds of images they produced, but they just answered that their work depicted the images of our time without judging.

Many in the art world said that Andy Warhol's work wasn't original, so it wasn't art. He was always involved with some sort of controversy, often provoking controversy on purpose, just to get people to talk about art. Andy Warhol died in 1987 in New York City.

Warhol's Myths/3

Background on myths

What is a myth? Myths are stories created to:

-Explain unanswered questions: How was the world created? Why is there night and day? How do people get rich?

-Teach moral lessons: Honor your family, treat others kindly, be honest, money isn't everything.

-Describe real or imaginary people: Heroes personifying the best people can be physically, morally, or intellectually; or characters personifying the worst in people, like greed or dishonesty.

All cultures have myths—including our own. Contrary to popular definitions, myths aren't "false"—in fact, they are about ultimate truths. Myths and mythical characters help describe and personify beliefs and values that are important to people.

How are myths communicated? Some myths are told as stories from one generation to another. Other myths are shown with pictures and symbols painted on the walls of churches and tombs, illustrated in books, or sculpted as sacred objects. Modern myths can be found in magazines, movies, or television. Many times myths are part of a culture's rituals and ceremonies and are often accompanied by special clothes, masks, music, food, gift-giving, and dancing.

Myths are repeated within families to promote values to younger generations. These personal stories, sayings, events, and traditions—called "family folklore"—signal what is important to the family. Family myths often begin, "My mother would have said..." or "I'll never forget when...."

The following activities will help your students identify the myths of their own culture and families, and compare them to myths from other families and cultures. Then they will learn how artist Andy Warhol used the silk-screen process to point out some of the myths of American culture.

Before your visit

Discover the myths of your culture

Explain myths, then ask students what stories they know to answer questions like:

How was the world created? [God, Big Bang]

What makes it rain? [Then, why do people blame meteorologists for the weather?]

How do people get rich? ["ripping people off," hard work ("a rags-to-riches story"), a good education, "the rich get richer and the poor get poorer"]

Think of as many answers as possible for each. Compare the different ideas about these questions within our culture: *How are they the same? How are they different?*

Ask students to list characters—real or imaginary—who are important in our culture: *Think of who you see on magazine covers or television. What characters are being made into children's toys? List heroes, but also name people we "love to hate."*

At the time of this writing, Teenage Mutant Ninja Turtles were a good example of the kind of popular myth that changes rapidly. A little longer lasting are movie myths like Rocky, Clint Eastwood, or Darth Vader. Still longer lasting are popular images like cowboys and gangsters, holiday myths like Santa Claus, or patriotic heroes like George Washington and Abraham Lincoln. Myths about people are not complex. Political motivations of presidents are often ignored in favor of myths that express higher ideals. The John F. Kennedy myth survives repeated revelations about his private life and politics. Myths are what we *want* to believe.

Describe the personalities of each of the characters on your list. *What ideas or human characteristics—either good or bad—do these characters symbolize for you? For other people? Why are these qualities important?*

Compare myths across cultures

Find myths from other cultures that explain the same questions asked above. Compare the ideas. *How are they the same? How are they different?* Now reverse the process: match a myth from another culture to one in your culture. For example, *how do Greek and Roman gods compare to today's super-heroes?*

Fabled family members.

Families myths teach family beliefs to younger generations. Ask students to recall when they have heard grown-ups at home say, "Well, my mother would have said..." or "I'll never forget when...." What kinds of stories usually follow? These traditional stories signal ideas that are important to the family and form our "family folklore."

Have students ask older family members the *Fabled family members* questions (p. 5). Their goal is to discover hidden family heroes. Ask them to write or tell and illustrate a family hero's story.

Fabled family members

Look for myths and heroes on your family tree.

Ask an older adult at home these questions to discover hidden family heroes and the beliefs your family treasures.

- ❑ How did members of your family make a living? What training did they have to have for their jobs? What were job conditions like?
- ❑ What members of the family served in the military? What were their duties? Did any see active service? What war? Where? What stories have been told about their experiences?
- ❑ What stories have you heard about how hard their work was or of things that happened at work?
- ❑ How did wars affect the lives of others in the family?
- ❑ What were the responsibilities of the women of the house? What jobs, if any, did women hold outside the home? How did they manage to do both?
- ❑ Who in your family has come through really tough times? What is their story?
- ❑ What big events occurred in the life of your family or your town? What stories are told of natural disasters like floods, tornados, blizzards, etc.?
- ❑ Who are the "pioneers" in your family—the first people in the family to do or accomplish something? What is their story?
- ❑ What family stories have been told about good times or hard times?
- ❑ Who do you admire most in the family? Why?
- ❑ What stories has your family told of great fortunes made or lost? Are they funny or sad?
- ❑ Who is your hero outside the family? Why?

During your visit

Discuss Andy Warhol's *Myths.*

Preschool children love recognizing the characters in the *Myths* gallery. They are not yet ready to consider Pop Art and the meaning of myths. However, they are able to appreciate the prints as "pictures a famous Pittsburgh artist made of his heroes." In the gallery discuss who some of their own heroes are and why. Make the transition to the silk screen studio by explaining that Andy Warhol printed these pictures exactly how they will be printing in the next room. Ask: *How many colors can you name in one print? That is also the number of screens Warhol used to make that print!*

Andy Warhol created a series of photo-silkscreen prints that he called *Myths.* For his subjects, he chose very recognizable characters, or "heroes" from American culture. Then he used the techniques of Pop Art to make us look at them in a new way. Seat students on the floor in the *Myths* gallery and ask them:

Which characters do you recognize? Who are they? How would you describe each of these characters "personalities"? What is important about each character? Why do people like or dislike this character?

Myths are "super-people." For example, Superman is super good and super strong. What would you call the other Myths*: super—?*

Why did Warhol include himself in his Myths *series? What was he trying to say about his own myth about himself? Why does his shadow take up more space than his face itself?*

What do the myths mean? (now or after visit)

Have students complete the "What do the myths mean" worksheet (p. 7) now as a wrap-up of their discussion or back in class as a review. Evaluation is an important part of this activity—for each character students will theorize why Warhol chose it for the *Myths* series and state what they believe about these ideas the characters represent.

Act out the myths.

Ask volunteers to role-play one of the myth characters in the gallery to show its mythic traits. Then have them interact with each other in their roles. What might happen if Superman and Howdy Doody met? What would the conversation be like between the Wicked Witch and Mickey Mouse?

Discuss how Warhol created *Myths.*

Explain that to create each of the *Myths,* Andy Warhol used a special process called photo silk screen. First he made a stencil from a well-known photograph of each of the characters and attached it to a piece of silk stretched on a frame. Then he experimented by painting with different colors. To make us pay attention to his *Myths,* Andy Warhol used some Pop Art tricks: he made the myths large in size and go to the very edges of the square; he used repetition by repeating lines in the prints and also by making myths a series of prints instead of just one painting; he emphasizes parts of the print by using the bright colors and smooth textures of commercial artists and sign painters.

Ask: *How does the large size of Warhol's* Myths *make you feel? How does he use color in Myths? How is the color different from the original photograph? Where has he repeated part of the image? Why?* [One possibility: the repetition in Superman helps give the illusion of motion.] *Where is your eye drawn on each of the prints? How has Warhol emphasized this spot? What precious material has he added to his prints?* [Diamond dust.] *Why did he choose this material? Is the silkscreen printing process and the Pop Art style the best choice Warhol could have made to communicate his ideas about* Myths*? Why or why not? What art process and style would you have used? Why?*

Create your own silk screen print.

In the silk screen studio next to the *Myths* gallery, students will work with a museum staff member to create their own silk screen print. Two options are available—we strongly encourage you take the first:

- Make stencils in class ahead of time according to the directions for class silk-screening on pages 9 and 10. When you make the reservation for your museum visit, tell the staff person you will be bringing your own silk screen stencils with you.
- Use a stencil provided by the museum. The theme for the print is usually tied to the changing exhibit in the rotunda, but there is always a chance for student creativity.

Encourage children to continue working on their print with the art materials available on work tables in the silk screen studio.

WHAT DO THE MYTHS MEAN?

What is the myth behind each of these popular characters?

What does each of these characters make you think of?
Why do you think Andy Warhol chose each as a myth?
How are the three myths the same?
How are they different?

Name of character:
This character is a symbol of:
Myth (ideas, beliefs) the character helps explain:

Name of character:
This character is a symbol of:
Myth (ideas, beliefs) the character helps explain:

Name of character:
This character is a symbol of:
Myth (ideas, beliefs) the character helps explain:

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A Myth For Me

Who—real or imaginary—would you like to add to the Myth gallery?
Your art work can hang in the museum along with Andy Warhol's!

- **Think** about someone who stands for a set of ideas or beliefs that you believe in.
- **Draw** his, her, or its picture in Pop Art style.
- **Write**:
  - the name of your character;
  - the myth he, she, or it stands for;
  - why he, she, or it should be added to Myths.
- **Send** your Myth nomination to:
  The Pittsburgh Children's Museum
  One Landmarks Square
  Pittsburgh, PA 15212

The name of my myth character:

My myth stands for these ideas and beliefs:

My myth should be added to the Myths gallery because

My name and hometown:

After your visit

Write about a myth.

Andy Warhol told his *Myths'* stories visually—with pictures. Ask students to choose one of Warhol's *Myths* and tell its story with words. They can write their stories, tell them out loud to the class, or dramatize them.

A myth for me.

Ask children who else they think should be included in Andy Warhol's *Myth* series: *If he were doing the Myth series today, who do you think he would have chosen as myths or heroes from this year?* Have students use Warhol's style to create a picture of someone they would like to nominate for the *Myth* series. On the nomination form (page 8) explain what ideas this myth stands for and why it is important. The class can send finished nomination forms to The Pittsburgh Children's Museum.

Transformations: What do you dream of being?

Ask students to imagine that they have the power to transform into a mythical character that is everything they dream of being. *What powers, abilities, or character traits would you like to have?* [Fly through the universe, see things very far away, swim faster than any fish, bravery, generosity, intelligence.] *What features would you need to help you with these powers?* [Wings, muscles, many eyes or one big telescoping eye, fins and webbed feet.] *What animals could you borrow from who have some of these abilities or character traits?* [Dogs, owls, dolphins, hawks.]

"Mike Fink's Brag" in the *Riverscape* exhibit guide is an example of one person's myth about themselves. *Create a self-portrait of you transformed into a creature that represents your myth about you. Use one of the following print-making methods to create your myth:*

Styrofoam print

Cut the edges off a styrofoam food tray, leaving a flat plate. Draw the mythical creature into the styrofoam with a blunt pencil, creating textures with different pencil marks. Roll block printing ink over the surface of the plate with a special roller called a "brayer." Lay lightly dampened paper on top of the inked plate and rub the back carefully to pick up ink.

Cardboard print

Cut and arrange shapes to create your character out of oak tag or light cardboard. Glue the shapes onto an oak tag background "plate," overlapping if desired. Allow glue to dry before printing. To print, roll block printing ink over the plate's surface with a special roller called a "brayer." Lay lightly dampened paper on the inked plate, rubbing its back to pick up ink.

Symbol stamp

Mold small pieces of clay into shapes that symbolize your mythical creature's characteristics. Flatten symbols on one side, dip into a shallow pool of paint, and stamp-print the symbols around the border of your mythical creature print. Vegetable and found object printing are particular favorites among preschoolers.

Continue your story...

Have students develop stories about the adventures of their mythical creatures: Who they encounter, what amazing feats they accomplish, what problems arise that they must solve. Write and illustrate a comic-book-style folding or scroll book.

Pop Art: Take another look.

Andy Warhol and the other Pop Artists tried to make people look at familiar objects in a whole new way. *Why do you think Warhol may have wanted people to notice soup cans or a Coke bottle? How did he make people notice them?* [By choosing such everyday objects as subjects for paintings to be hung in a gallery, by repeating the soup cans, enlarging the Coke bottle.]

What familiar everyday images would you like to make people take a closer look at? Why? What is important about the object or the idea that it represents? How could you make people notice your object and understand your message? Use Warhol's or your own style to make people look differently at your object.

Background on the silkscreen process

Silkscreen printing is a stenciling process. Silk or another fine fabric is stretched tightly over a frame making a screen. A stencil of paper, acetate, or other material is cut to make a design and adhered to the screen. Printing paper is placed beneath the stenciled screen and ink is pushed through the the screen with smooth even pressure using a rubber squeegee. Ink passes through the screen in the open areas of the stencil to print the paper underneath.

For a design of more than one color, different stencils are cut for each color and are printed in layers that must be perfectly aligned.

Host a PCM Silkscreen Printing Workshop.

Invite a Pittsburgh Children's Museum staff member to your school or community group for a Silk Screen Printing Workshop. We provide all the equipment for students to print their own stencils on our screens. If you wish, students can create their mythical creature as a paper stencil (see above), then print their stencils during the workshop. We can also tailor our workshop to meet any other curricular theme you have in mind! Call 322-5059 for details, cost, and booking information.

Stencil and silkscreen in the classroom

If you have access to a silk screen or the ability to construct one, try silk screening with an elementary class using paper stencils. If not, at least use the following directions to cut oak tag stencils to bring to the museum to print, or to print them by dabbing with a sponge or spraying or spattering paint over the open stencil areas. The principle is the same as a silk screen, although printing does not go as quickly or neatly.

Step 1. To build a frame...

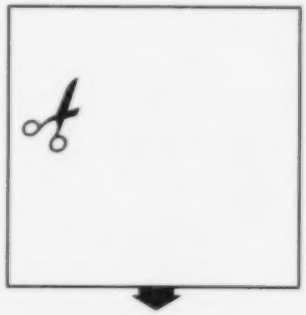
...for a class silk screen, nail four strips of wood together to form rectangular frame (art suppliers also sell kits to make screens). Stretch fine organdy fabric over the frame, wrap it over the edges, and fasten to the wood with a staple gun.

Step 2. To make a stencil...

...draw a design on paper (perhaps the face of a mythical character) and simplify the design into shapes. Fill in the shapes to be cut out with a black marker then cut out the black areas with scissors. The stencil can be either one sheet of paper with shapes cut from the inside, or separate paper shapes arranged to create the design. Either way, ink will pass through areas of the screen the stencil leaves open.

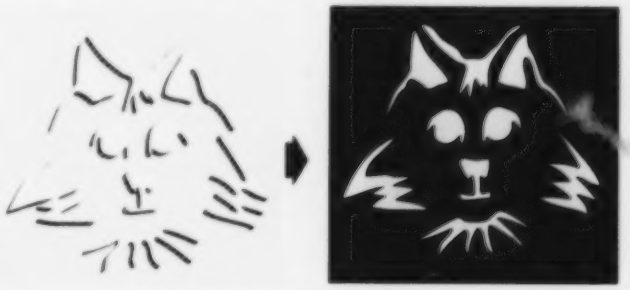
Step 3. To print...

...mark with masking tape where the printing paper and frame should be placed on the table. Lay the printing paper on the table, arrange the stencil on the paper, and place the screen silk side down on top of the stencil. Clamp the screen to the table to keep it from moving. Apply water-based printing ink across one end of the screen and pull the ink across the screen with smooth even pressure of the squeegee (ink and squeegees are available from art suppliers). Make a second pass with the squeegee to make sure ink has penetrated. Lift the screen and remove the print—the stencil should adhere to the screen. To print the same design again, lay a new sheet of printing paper within the marks and repeat the process.



If cut carefully, every stencil has two variations—a positive and a negative version!

Stencil with holes prints a "positive" image



The cut-outs print a "negative" image

A PIECE OF PITTSBURGH

Puppets Teacher's Guide

Let the play begin!

Play is a child's work. The Pittsburgh Children's Museum is dedicated to providing children with exciting environments for active learning. This series of guides will help teachers stimulate their students' natural impulse to learn through play. Pick and choose from our suggestions to find activities that suit your class goals before, during, and after your museum visit.

Experience the magic of hometown favorite Mister Rogers, Jim Henson, and other puppet masters who used television to create a community. Share with people all over the world through puppets that speak every language.

Inside...

A word to teachers 2
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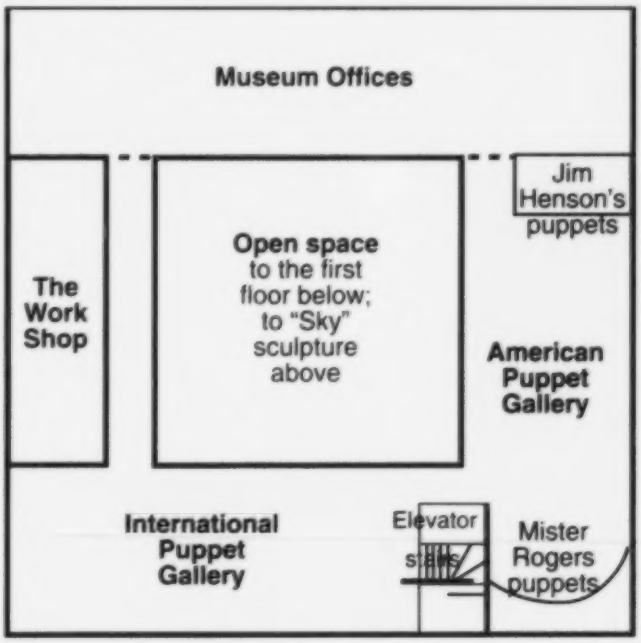

SECOND FLOOR
Balcony

The Pittsburgh Children's Museum

Funded by the Vira I. Heinz Endowment.
Susan K. Donley, author, illustrator, designer; Lois Winslow, project director.

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Theme

Bringing a puppet character alive to feel, learn, celebrate, and much more.

A word to teachers

Think of this guide as a menu of ideas from which you can choose activities to meet *your own* instructional objectives—no one expects you to have time to do everything! Learning activities are grouped for appropriateness before, during, or after your museum visit. We suggest that you consider at least one activity from each grouping so that your students are both prepared for their visit and able to make the connection between their museum and classroom learning. Activities appropriate to various age levels are marked:

preschool (three–five-year-olds)

early elementary (kdg.–second grade)

elementary (third grade and older)

Don't let these age designations stop you from adapting *any* idea that suits your goals.

The worksheets in this guide are not available at the museum. If you choose to use them, make copies for each of your students from the duplication masters in this guide and bring them along on your visit. And don't forget pencils!

The puppet collection

The Pittsburgh Children's Museum is privileged to be home to one of the best puppet collections in the nation! In 1984 Pittsburgh puppeteer Margo Lovelace donated to the museum her extensive collection of puppets from all over the world. Half of the puppet gallery on the second floor is devoted to international puppets from her collection. These puppets show the diverse range of human creative expression while at the same time reminding us how much we share with people everywhere: the need to play, celebrate, and tell stories, the desire to communicate our heritage, and the conviction to pass on our values to our children.

The other side of the puppet gallery is devoted to puppets from the United States. In the center of the American gallery is a changing exhibit of American puppets from the Lovelace collection and on loan from other sources. Here at various times you might see famous media puppets like Howdy Doody, or masterworks by puppeteer Bil Baird, creator of *The Sound of Music's* "Lonely Goatherd" marionettes. In other parts of the gallery you can see puppets the museum has added to the Lovelace collection. In one corner are the puppets and neighborhood of another famous Pittsburgh puppeteer, Mister Rogers. In the other corner are the fantastic puppets of the late Jim Henson, who brought high-tech to TV puppets.

Classroom connections

Puppets are a natural extension of children's innate urge to give voices and action to their toys. Take advantage of students' natural love of puppets by using them as a motivator in almost any skill or subject area. Try bringing puppets into any theme involving people or animals (or even plants!): community, family, celebrations, zoos, wildlife, Middle Ages, outer space—the sky isn't even the limit! Use the international gallery to spark good discussion about living in a multicultural world.

Preschool

Making and using puppets develops ***visual and language arts skills*** and inspires ***creative free play***.

Elementary

Creating puppets and puppet shows develops ***visual arts***, ***communication***, and ***organizational skills*** in ***cooperative learning*** situations and can reinforce learning in ***geography***, ***history***, ***science***, ***health***, ***language arts***, ***creative dramatics***, ***music***, and ***art***.

Background information

Puppet history

Puppetry is a marriage of visual art and drama. The puppet maker teams with the puppeteer to create characters that assume lives of their own to dramatize a story.

Because of their relationship to the puppeteer, puppets differ from dolls, sculptures, and other figures. Without the puppeteer, the puppet is lifeless. Through the talent of the puppeteer, puppets become independent beings. Ideally, we ignore the puppeteer and concentrate on the story.

No one knows the exact origin of puppets, but one theory suggests that adults took the idea of childhood play with dolls one step further. Others believe puppets arose out of religious observances rather than recreation. Priests would manipulate idols or fetishes to move their followers.

The first puppet figures were moved by hand, but later they were moved mechanically by strings or weights. Other figurines, sometimes with entire scenes, were set to moving by water, warm air, wind, or steam.

Not all mechanized scenes are puppet shows. A puppet show is a dramatic form in which the characters are moved by manipulation. The puppet show tradition evolved independently in several parts of the world thousands of years ago. Shadow puppet shows originated in China and India. Puppet and marionette shows were popular in ancient Greek theaters, markets, and streets. The Romans preserved the Greek puppet show and passed it along to the European civilizations that followed.

The Church in the Middle Ages used mechanized figures of Christ, the Virgin Mary, and other biblical figures to teach religious lessons to their parishioners (in fact, the word "marionette" means "little Mary"). Puppet shows dramatized history, legends, and religion, as well as comedies for sheer entertainment.

In colonial America itinerant puppeteers would travel from town to town, setting up shop for a week or two to perform their repertoire for the entire community.

Some puppeteers have expressed controversial political ideas. Chinese Communist revolutionaries and Czech nationalists spread their ideas through puppet performances. Today the Indian government uses puppets to convince citizens of the wisdom of family planning and other policies.

Types of puppets (with exhibit examples):

Hand puppets (King Friday XIII)

A hand puppet suddenly comes to life when its head, clothes and arms are slipped over the puppeteer's hand. Usually the head is moved by the index or middle finger and the arms by the thumb and little finger.

If the head is hard and hollow the puppeteer gives the puppet its expression by manipulating the body and tilting the head. If the mouth is hinged or flexible, the face can be manipulated to match the character's speech. Soft-headed puppets can even be given facial expressions by the puppeteer's hand operations underneath.

Hand puppets are usually composed of head, hands, and a shirt-like costume. If legs and feet are included they usually are not manipulated, but simply hang out from the stage.

Marionettes (Bil Baird's dancers)

Marionettes are flexible puppets moved by one rod or string from the head. Arms and legs are moved by gravity or strings.

Although marionettes are shown in the museum's puppet gallery, this exhibit guide will not include directions for making or using them. Because marionettes are difficult to build and manipulate, they are frustrating and not developmentally appropriate for preschool and elementary children. If you are working with older students and wish to make marionettes, check the books on the reading list for directions.

Rod puppets (Sicilian knights)

Rod puppets are flexible like marionettes, but their movements are guided from above or beneath by rods.

Shadow puppets (Javanese)

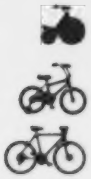
Shadow puppets are flat, opaque or translucent figures moved from beneath by small rods behind a backlit screen.

Robotic puppets (Jim Henson's puppets)

Robotic puppets are moved mechanically, sometimes by remote control. This brand new form of puppetry has made movies with many strange, wonderful, but realistic creatures possible.

Before your visit

Pop Puppets



Puppets have been popular for generations. Many of the most popular children's characters have been puppets. After students guess as many of the famous "Pop Puppets" (worksheet, p. 5) as they can using the picture and riddle clues, have them finish the game with older adults at home. Encourage students to ask their adult friends to tell them memories they have of the puppet character. The puppets identities from left to right starting from the top are:

King Friday XIII
Punch and Judy
Charlie McCarthy
Howdy Doody
Kermit the Frog
Lamb Chop and Hush Puppy
Pinocchio
Kukla and Ollie
Topo Gigio (with Ed Sullivan)

After the students return the worksheet, ask them to tell what they found out about some of the famous puppets from the past. Then ask them to name some of their favorite famous puppets and tell what they like about them.

Create instant sock or hand puppets.

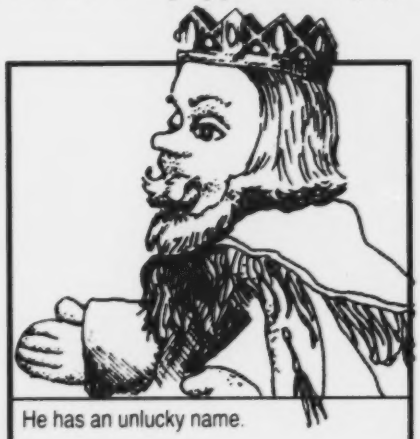
Bring several socks into the classroom. Explain that part of the puppets expression comes from its design, but part of it comes from the the puppeteer's movements. Ask several volunteers to put the socks over their hands and create a mouth by tucking the toe of the sock between their thumb and fingers. Then ask them to make the sock look happy, sad, or show other emotions, just with their hand movements. How different were each of the sad expressions? How many ways can we create to make the puppets look sad? Give others a turn with the socks and ask class members to give the puppeteers other expressions to act out. This exercise also works well with the plain "hand" hand puppet (see page 11).

Challenge them to imagine how to make the puppets they will see at the museum show some of these expressions.

Pop puppets

Can you name these famous puppets?

Write your guess in the space under each picture.
Some of the puppets were popular when your parents and grandparents were kids—ask them to help!

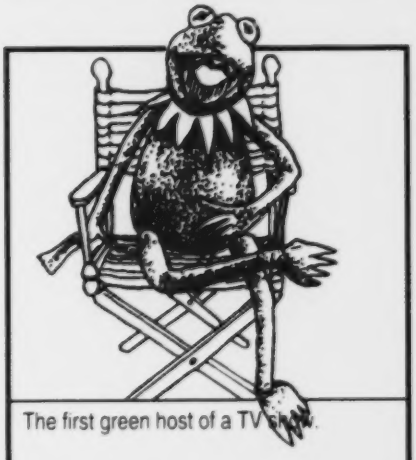


He has an unlucky name.

They played on the streets.

He was a radio star.

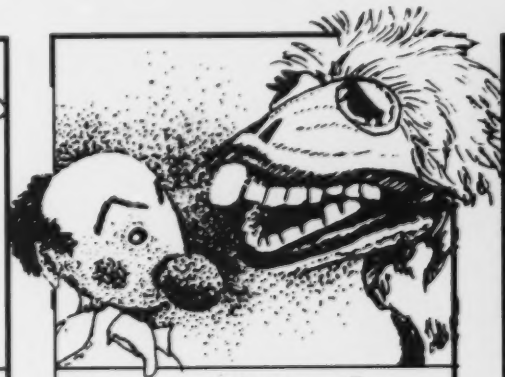
He was a friend of Flub-a-Dub.



The first green host of a TV show.

They were Shari's Saturday morning stars.

His nose grows.



They had a human friend name Fran.

He made a stony face smile.

L–r: King Friday XIII, Punch and Judy, Charlie McCarthy, Howdy Doody, Kermit the Frog, Lamb Chop & Hush Puppy, Pinocchio, Kukla & Ollie, Topo Gigio

During your visit

Scavenger hunts

Scavenger hunts can be a great way to focus student attention when viewing a museum exhibit. Having a goal for their browsing makes them look more critically and spend more time than they would in a casual, undirected visit. On the following pages are three scavenger hunts—choose the one that best fits your goals. Don't forget to bring pencils!

Type-casting puppets (p. 7).

Students will find and draw an example of each of the five main puppet types: hand, rod, shadow, marionette, and robotic. Pictures of puppets from the collection are given to help students tell the difference between the types of puppets—however, their examples should be different than the examples in the pictures! Begin by reviewing the characteristics of each puppet type (see descriptions on page 3), then asking them to search first for the examples pictured on the worksheet.

Puppets from other places (p. 9).

The puppets in this exhibit represent the heritage of many cultures around the world. Some of these puppets came from the same places that the students' ancestors migrated from before becoming part of Pittsburgh's cultural mosiac.

In this scavenger hunt, students will look for puppets from each of the continents (if possible), draw pictures of the puppets and write the names of the countries in the appropriate box. Then, they will find and write the country's name on the outline map. Have a world map or globe available for students to refer to or finish this step later in class. Then, discuss: How are these puppets the same? How are they different? Which continent(s) were you unable to find a puppet for? What are some reasons for a lack of puppets from this area of the world? [Few people live in Antarctica, an exhibit this size can't possibly contain all the types of puppets from *everywhere*, etc.] Back in the classroom, they can use the library to find out more about the countries.

What a character! (p. 8)

Students will find puppets that look like they are funny, scary, regal, cuddly, goofy, angry, or shy characters. Later when they make their own puppets they will use exaggeration and contrast to create characters that will "read" from the audience. Explain these two concepts and ask them to go back on their scavnger hunt sheet and mark with a ✔ puppets that use exaggeration and with a ✘ puppets that use contrast to create emphasis (see below under "Making Puppets" for more information).

This exercise can also be done back at the classroom as a memory-jogger.

Operate the puppet pull-outs.

Ask a museum staff member for help with:

African toe puppet

Japanese Bunraku puppets

Javenese shadow puppets

Improvise a shadow puppet story.

The puppet exhibit includes a walk-in shadow puppet stage where students can improvise their own shadow play. The puppets and scenery at the shadow theater change often with the seasons or special events at The Children's Museum.

Divide into groups of two to four students. Show everyone the puppets available and allow about two minutes for them to talk in their small groups to make up a brief story using those puppet characters. Then let each group take a turn performing their story on stage while the other students watch.

Type-casting puppets
Scavenger hunt

Explore the puppet galleries and find an example of each of the five main types of puppets (different from our examples!).

- **Draw** a small sketch of the puppet.
- **Write** its name, if given.
- **Write** the name of the puppet's maker (or the country where it was made if the maker's name is not given).

Rod puppet

Name of puppet:
Maker or country:

Hand puppet

Name of puppet:
Maker or country:

Shadow puppet

Name of puppet:
Maker or country:

Marionette

Name of puppet:
Maker or country:

Robot puppet

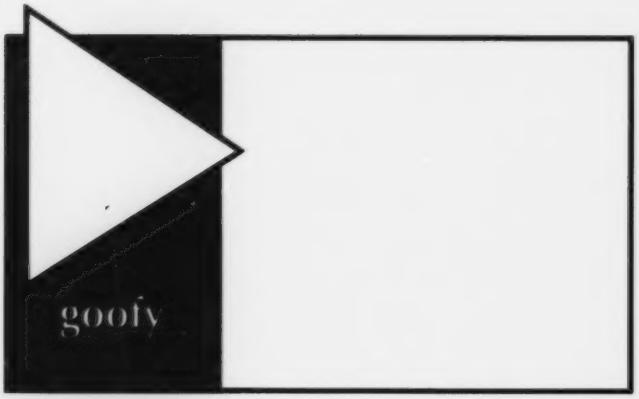
Name of puppet:
Maker or country:

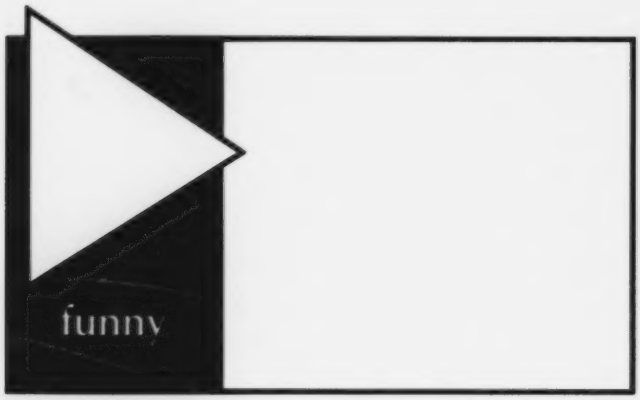
Puppets/7

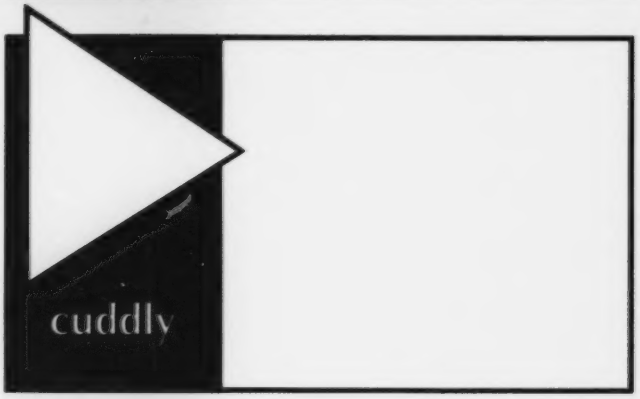
What a character!
Scavenger hunt

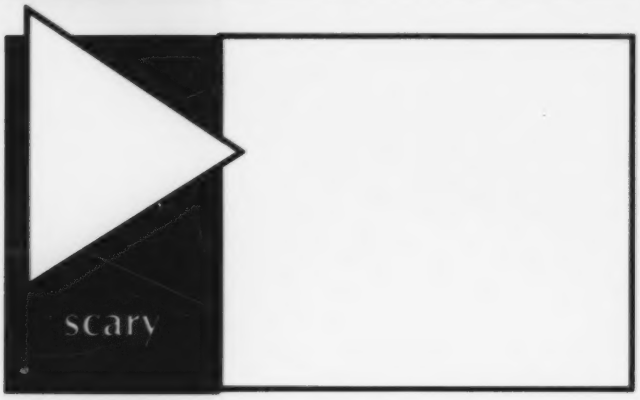
Explore the puppet galleries and find a puppet whose character matches each of the words below.

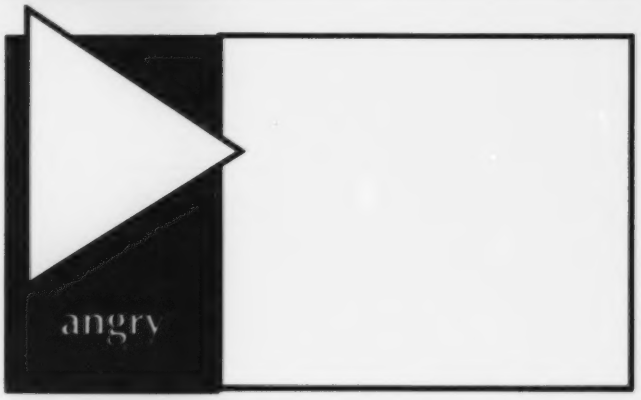
- **Draw** a small sketch of the puppet.
- **Write** its name, if given.
- **Write** the puppet's maker or country.

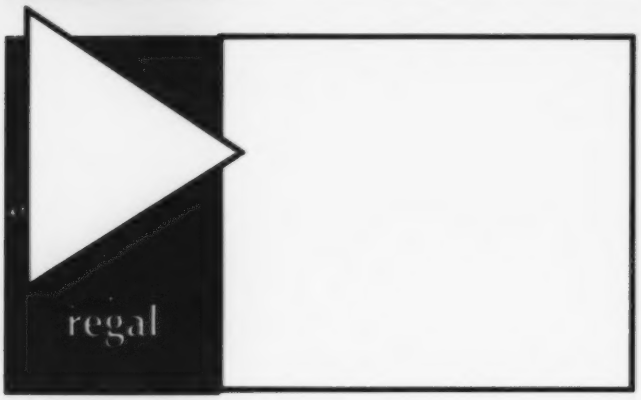


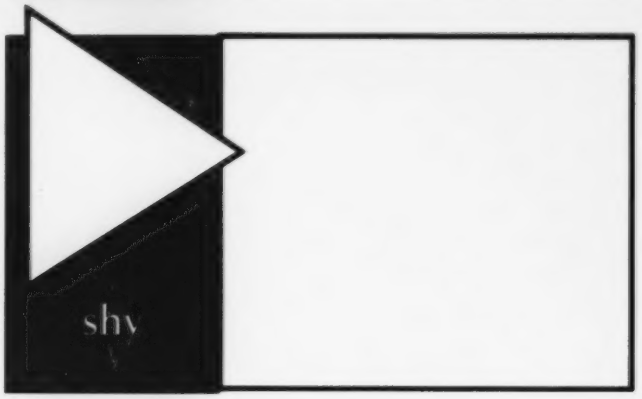










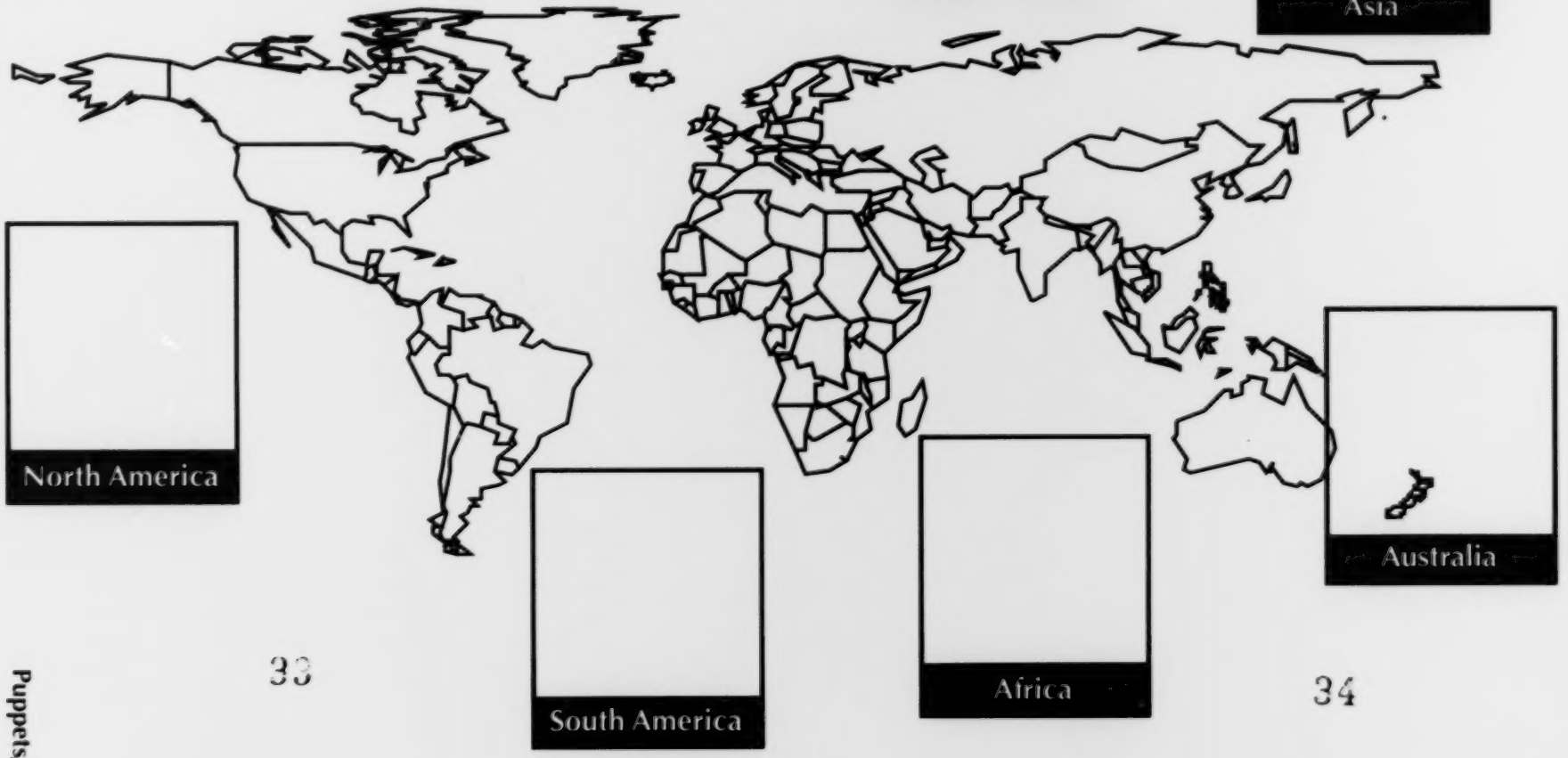


Puppets from other places

Scavenger hunt

Explore the puppet galleries and find puppets from each of the continents (if possible).

- **Draw** a picture of the puppet and write down the name of its country.
- **Find** and **write** the country's name on the map (look at a world map or globe if you need to). Did any of these puppets come from places your ancestors lived before coming to Pittsburgh?
- **Compare** the puppets: How are they the same? How are they different?



After your visit

Making Puppets: Ideas

Several approaches can be used in school puppeteering. For preschool children making puppets and simply playing freely with them without a planned production is quite appropriate.

Older children need more structure to maintain their interest and to attain the language development goals they are ready to achieve. Two approaches can be followed to create a structure for creative play with puppets. One is to make the puppets first, then write a play suggested by the puppets. The other is to write a puppet play, then create the puppets to go with the play. The latter method is closer to the way professional puppeteers work and yields a well-planned production. The first method, more suited to prevent frustration in younger children, allows more individual freedom, but sometimes results in a highly improvisational and unlikely drama! Depending on your own teaching style and your students' learning style, you may prefer one over the other.

A compromise between the two processes would be to choose a theme for the puppets—wildlife, space, dance, etc.—and allow children freedom to create their own individual character within that theme. Then create the puppet show, whose plot will at least have a clear plot suggested by the theme. Choose themes related to the curriculum or use some of the idea starters below:

- I dream of being...
- Time machine puppets (character from another time)
- Wildlife puppets (after museum, zoo or aviary trip) including plants, insects, etc. Suggest ecology plot.
- Monster puppets (*Where the Wild Things Are*)
- Portrait puppets (self, family, etc.)
- Occupation puppets ("What I'd like to be," community helpers).
- Puppet dancers. Emphasize current music, fashions or study different historical periods. (Flappers from the 1920s or disco puppets from 1970s—provide fringe, fluorescent papers, glitter, etc.)
- Create a robotic puppet to do your chores around the house, to send into a brother or sister's room at night to scare them, to do the job you most hate to do. Provide "high-tech" materials like foil papers and cellophane.
- Think about scary shadows on bedroom walls, then make the scariest shadow puppet of all.
- Create puppets of favorite story characters. Act out a sequel to the story or show what happens when characters from different stories interact.

Making Puppets: Methods

Below are some simple puppet forms to help your students bring their characters to life. These methods were chosen for ease of classroom adaptation. Puppets that involve sewing or modeling are not included because they tend to be difficult for young children. These puppet-making methods are no substitute, however, for an inspiring motivation. Begin your planning by deciding on a theme or idea starter (see previous section), then choose a puppetmaking method that suits the theme.

The following methods are shown in their most basic form—the underlying "skeleton" of the puppets. The fun and creative thinking begins when students build three dimensional characters on their skeletons with line, shape, color, and texture.

No matter what the character is or what method is being used to create it, remember: *A puppet is an actor, not a doll.* A puppet is more like a cartoon than a portrait! Exaggerate. Concentrate on the big features like eyes, nose, and mouth, rather than on details. If a puppet must be happy and sad in the same play, give it a neutral expression. Most fixed-mouth puppets are pictured with their mouths open to give the appearance of speaking.

Think about how the puppet will look on stage. Use the textures of paper and found materials to create a character's costume. Contrasting bright colors or textured materials draws attention to a puppet on stage. Real hair looks lifeless on stage, but thread, cord, fur, and other found materials catch light.

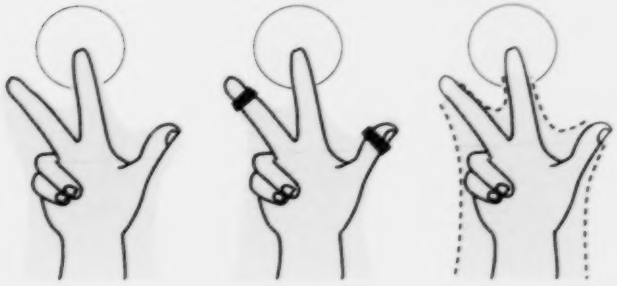
A week or two before beginning the puppets start a scrap box of "junk" that students bring in to help create the characters: fabric and wood scraps, foils, buttons, ribbons, feathers, rick-rack, pipe cleaners, paper doilies, silk and plastic flowers, styrofoam shapes and packing material, plastic silverware, cardboard tubes, etc. Encourage

students to use the class paper scrap box by challenging them to see how many ways they can find to make paper "un-flat"—folding, crinkling, pleating, curling, etc.

Hand puppets

Fixed mouth hand puppets:

Hand puppets with non-movable mouths usually have bodies that a puppeteer can move to show expression. The bodies of hand puppets are usually soft and pliable fabric so that the puppeteer can manipulate the head and arms. Several ways to make a fabric body are pictured below. The simplest way is to drape a cloth over the puppeteer's hand and place the head on the index finger to hold the fabric on. To better define the arms of the puppet simply wrap rubber bands around the fingers to hold the fabric tightly. The advantage of these methods is that they don't require sewing. The disadvantage is that costumes can't be decorated very easily. The third method shown requires sewing the traditional T-shaped puppet body. By not sewing the puppet's arms shut, the tips of the puppeteer's fingers show like hands. This type of body is easier to costume because its shape stays the same on and off the hand.



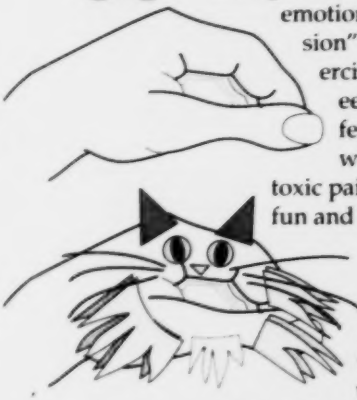
The head of a fixed-mouth hand puppet can be made of most anything. Traditionally, hand puppets like King Friday XIII and Punch and Judy were made of papier maché. This method is not recommended for preschool and elementary students. Papier mache is difficult to control and time-consuming, so students often lose interest before the end of the project. There is also some question about the safety of wheat paste dust in the classroom.

However, many other materials make terrific puppet heads. Styrofoam balls, paper cups, small boxes, stuffed nylon stockings (gathered with pulled thread to make features) can all be used for puppet heads. You might even make it a homework assignment to find crazy things to turn into puppet heads—no rule demands that the entire class must use the same materials for their puppets! Add features to the puppet with paint, glued-on textures or three-dimensional construction paper features.

Movable mouth hand puppets:

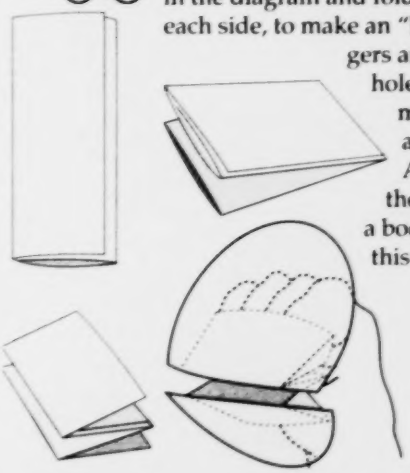
"Hand" hand puppets

The simplest movable mouth hand puppet is the hand itself! Even if your ultimate goal is to make one of the other movable mouth puppets in this section, spend some time encouraging students to use their hands as a "talking head" and to act out a full range of emotions by changing the "expression" of their hands. This exercise gives them good puppeteer practice for later. Adding features to their hand-faces with face paint or other non-toxic paints or markers adds to the fun and gives them practice developing a character that "reads" on stage. Hair, beards, hats, and other three-dimensional additions can be attached with white glue or rubber cement. A piece of fabric rubber-banded around the wrist makes a simple costume. Since these puppets must be created and used at the same work session, simplicity is the best approach—really ambitious ideas can wait for a more permanent project.

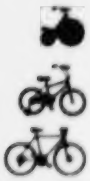


Folded paper puppet

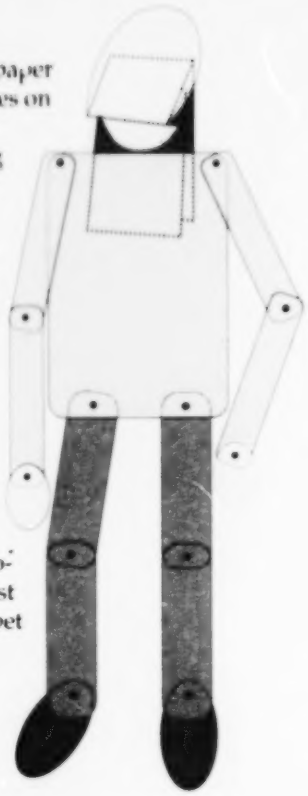
A sheet of construction paper can be folded into a movable mouth for a simple, but more permanent puppet. Fold a sheet of 9 X 12-inch construction paper in thirds as if folding a letter. Then fold in half as pictured in the diagram and fold the edges back on each side, to make an "M" or "W." Put fingers and thumb in the holes created to make a mouth foundation for a head of any shape. And don't stop with the head: you can add a body to any puppet in this section.



Paper bag puppets

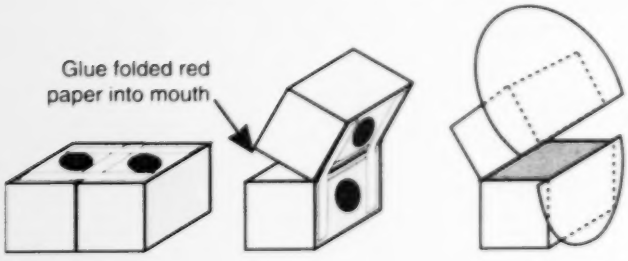


The venerable paper bag puppet takes on new life if you think of the bag as a mouth instead of a whole puppet. Students can build elaborate heads and bodies onto this mouth using paper and the "junk" collection. The diagram shows how to hinge together an almost child-size puppet with parts cut from 12 X 18-inch paper.



Milk carton puppets

A sturdier movable mouth puppet can be made with a pair of half-pint milk cartons or small boxes (like variety pack cereal boxes). Each student will need two cartons. Hinge the cartons together with an "H"-shaped arrangement of one-inch masking tape. Cut one-inch holes in the back of each of the boxes as shown in the diagram. Glue a folded piece of red construction paper (cut to the correct size for your cartons) into the open "mouth." Glue the basic face —cut at the mouth line to make a chin—to the front of the boxes and add three-dimensional features and textures. Attach the bodies to the back of the "chin" box using glue and brass fasteners for security. Although the diagram shows paper attached for a human face, you can make an animal's muzzle by attaching the upper face to the back of the top box.



Sock puppets

Sock puppets are among the few puppets flexible enough to allow facial expression, so they are well worth trying in the mid-elementary classroom. Sewing is not always necessary, since white glue works well on fabric if used generously and given enough drying time. To help solve the problem of trying to cut fabric with dull school scissors, use plenty of felt, which is more easily cut and/or arrange students in tables to share a pair of "teacher" scissors.

Add fabrics, yarn, and materials like lace, rick-rack, nettings, vinyl, sequins, and buttons to your "junk" collection. Supplement the collection with a few skeins of yarn and several yards of felt in various colors. Cut large pieces of fabric into smaller squares to reduce waste. Of course, have a scrap box and limit throw-aways.

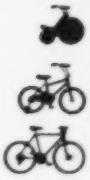
Begin with an adult-sized sock in a color that suits the character being created. Students can bring in clean used socks or you can buy cotton tube socks, which are available in economy packs. Tube socks can even be batch-dyed with standard fabric dyes. This is especially helpful when making animals or culturally diverse characters.

Before beginning encourage students to experiment with the sock as described in "Create an Instant Sock Puppet" on page 4. Give each student a piece of red felt to glue inside the mouth. Once the puppet has this beginning of a shape, eyes, hair, ears, and noses made of fabric or found materials become easy to place. Patience while the glue dries is the biggest challenge for most students. Tube socks are long enough to go almost to the elbow, giving plenty of room for a body. For human characters, costumes can be glued on at the neck. Legs and other animal parts can be folded or given a pipe cleaner "skeleton" to make them three-dimensional. Remind students that exaggerating textures and shapes gives life to their characters on stage.

Rod puppets:

Rod puppets—easy to make and use—are ideal for preschool children.

Stick puppets



Stick puppets can range from finger-sized to almost life-sized depending on the stick. Anything from popsicle sticks to broomsticks can be used as the "spine" of a stick puppet. Attach a head on top and a body underneath to cover the puppeteer's hand.

Use crayons or markers to draw features right on the stick for smaller sized puppets. With older children, hinge the arms of larger puppets and attach sticks to the wrists to control arm movements. Encourage students to work in three-dimensions and shop through the "junk" collection for inspiration.

Paper bag rod puppet

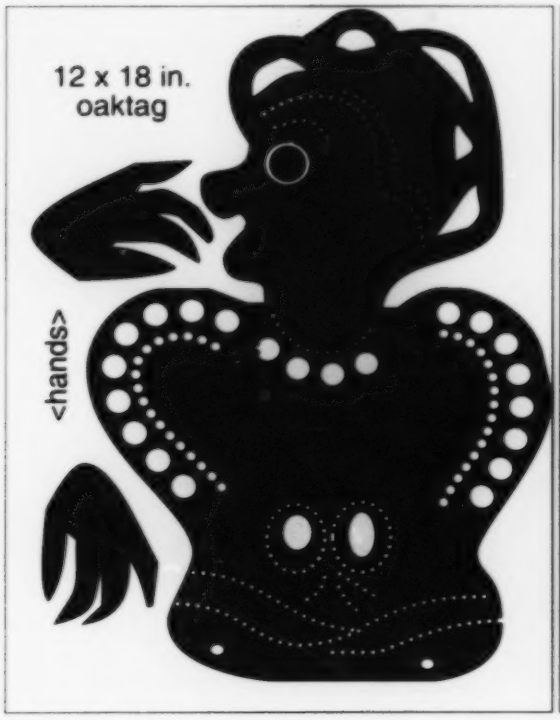
Students can stuff paper bag and attach them to a stick with a rubber band to create a three-dimensional head. Drape a costume over the hand as in the diagram or attach a more two-dimensional body from the front of the puppet's neck.

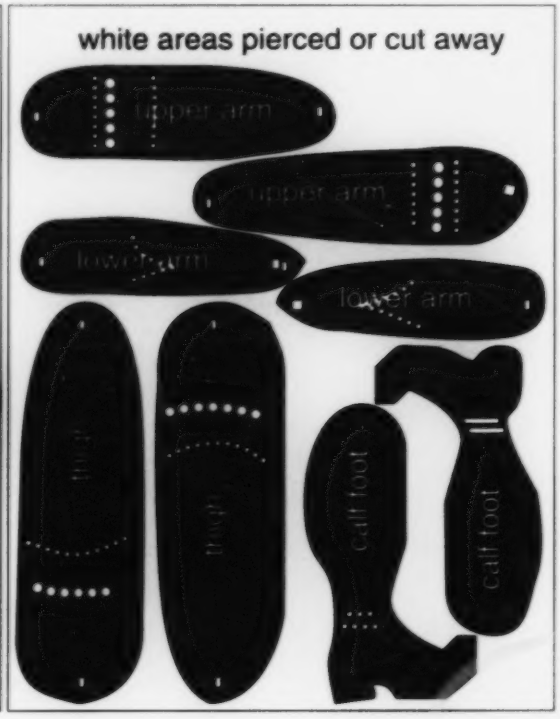
Spoon puppet

Plastic spoons make excellent little stick puppets. The back of the spoon is the front of the puppet's face. For best results, draw features with permanent markers and finish with plenty of textured paper or materials.

Shadow puppets

Draw the character's head, trunk, arms, and legs on oaktag. In traditional shadow puppets the head was shown from the side and the rest of the body from the front. Cut out each part with scissors and create pierced decoration with scissors or paper punches. Color both sides of the puppet's parts with markers. Wipe the puppet parts with salad oil to make them translucent (colors will bleed slightly and small drawn details may be lost, so for best results, concentrate on showing detail through cutting and piercing the paper). Join the parts with brass paper fasteners. Attach wooden sticks or corrugated cardboard strips to the body and arms to control puppet movements.





Creating a puppet play

Frustration and confusion can be avoided by teaching students a simple "all-purpose" plot scheme revolving around a problem and its solution. A simple plot can be summarized in one sentence (like a *TV Guide* program description!): The main character is trying to _____ but _____ happens or someone appears to frustrate the plan. To solve the problem the main character _____.

The problem is presented through dramatic action in the introduction of the play, the main part of the play develops a solution to the problem, and the problem is solved in the conclusion of the play.

Then, plan the rest of your production around your plot scheme by following these steps:

1. Name characters and make puppets (if not yet made)
2. Outline plot
3. Write or improvise script
4. Find or make props
5. Design scenery

Even if you plan to improvise the dialog and action, planning the plot ahead of time gives performers direction and helps the audience to follow the story. You can even use storyboards to plan the plot, just as real puppeteers do. Storyboards look like blank comic strips. The puppeteer draws what the action will look like in the frame and writes the dialogue underneath. This method helps the puppeteer visualize the action better than a script alone.

Both action and dialogue are important to bring the story and the characters to life. As you work on your play, think of how dialogue can provoke action and action can suggest what the characters will talk about next. Plan the action each character will take along with its dialogue.

There are practical limits to the number of puppets that can appear on the stage at one time. Plan for reasons and ways characters can exit and enter so that no more than three or four characters are on stage at once. These entrances and exits will add to the action, too.

Performing a puppet play

Puppeteering

To bring life to their motionless figures, puppeteers—like actors—must identify with their characters. To concentrate on creating the character with voice and motion, the puppeteer should be completely familiar with the workings of the puppet, the scenery, and the stage. Rehearsal is as important to a puppet show as it is to any performance—the production must become as second-nature as possible. Students should practice using the stage, scenery, and the puppet's different expressions. Even in the improvisational plays suggested above, practice allows students to concentrate on the improvisation. They will be better able to "think on their feet" (as opposed to repeating memorized lines) if they have practiced the mechanics of puppeteering.

Sound effects

Sound effects can really liven up a play. Experiment with rhythm instruments, a spoon beating on a metal pan, a kazoo or comb wrapped in tissue, wooden blocks clapped together or wrapped in sand paper and rubbed together, a cap gun, blow bubbles through a straw into a glass of water, slam two books together. Ask: What do each of these sound effects remind you of?

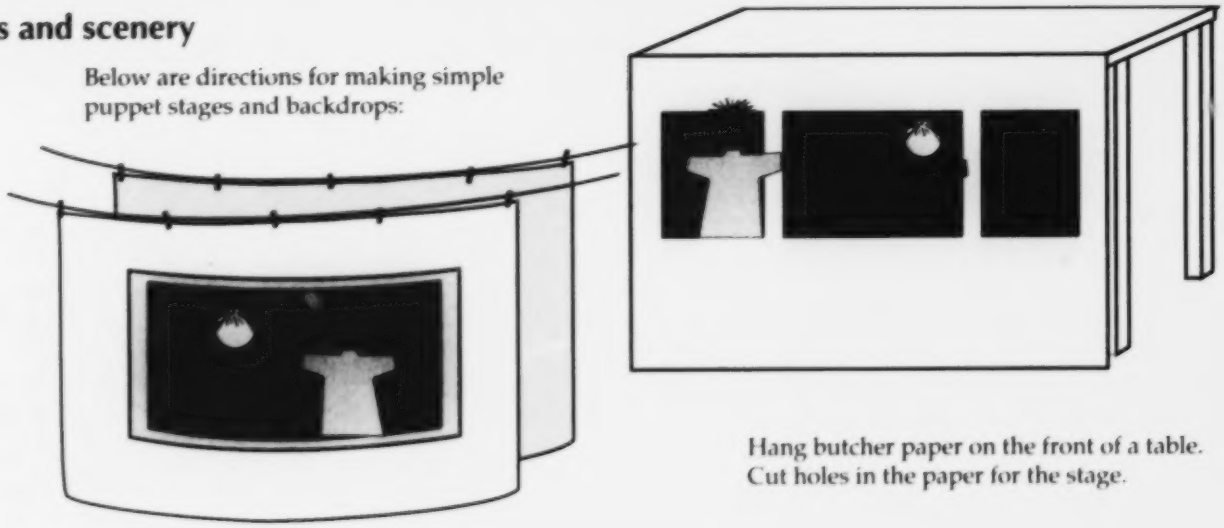
- Crumble cellophane (fire).
- Shake a large sheet of cardboard (thunder).
- Sprinkle uncooked rice on a cookie sheet (rain).
- Shake a steel can filled with pebbles (marching).
- Knock empty plastic containers on a table open end down (horse hooves).

Other special effects:

- Place colored cellophane over stage lights.
- Blow soap bubbles for an underwater scene.
- Sprinkle confetti from above for snow.
- Squeeze a baby powder bottle to make a smoke puff.
- Use a flashlight as a spotlight on a darkened stage.

Stages and scenery

Below are directions for making simple puppet stages and backdrops:

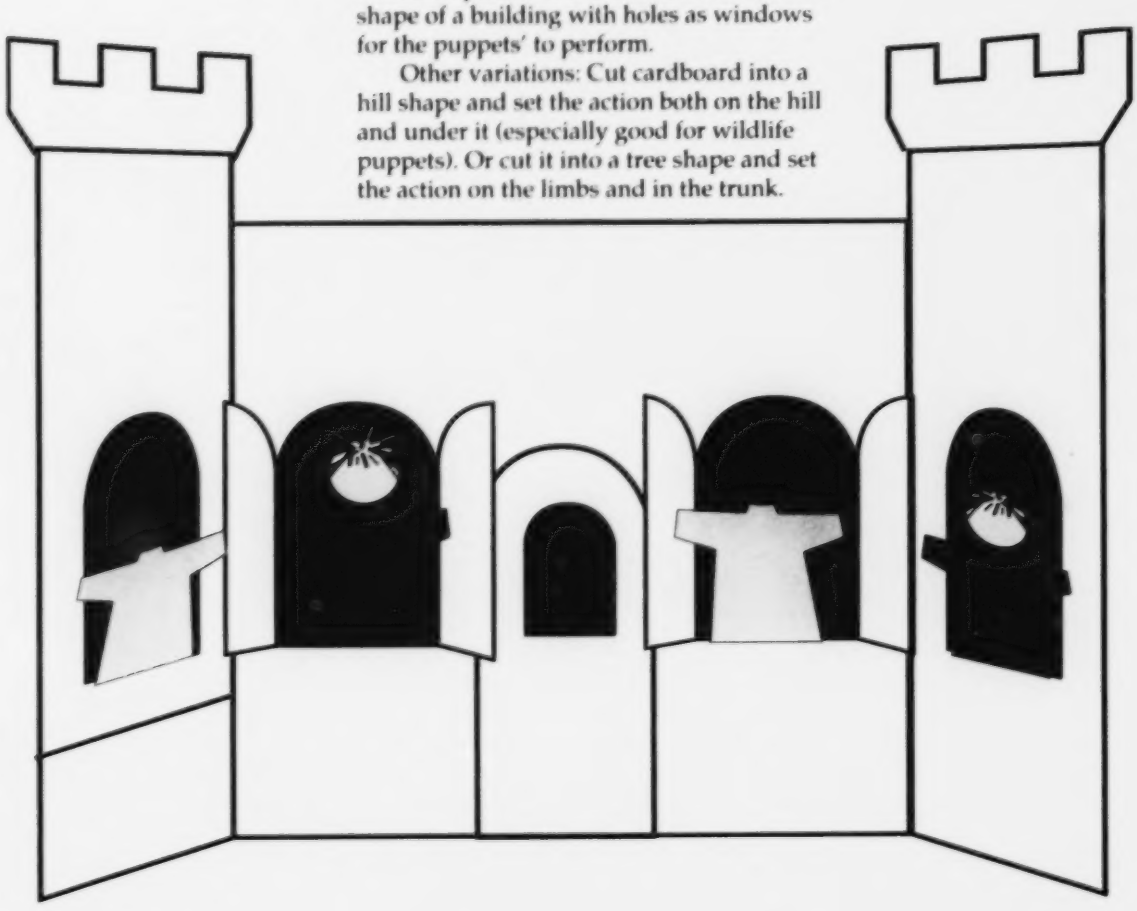


Hang butcher paper on the front of a table. Cut holes in the paper for the stage.

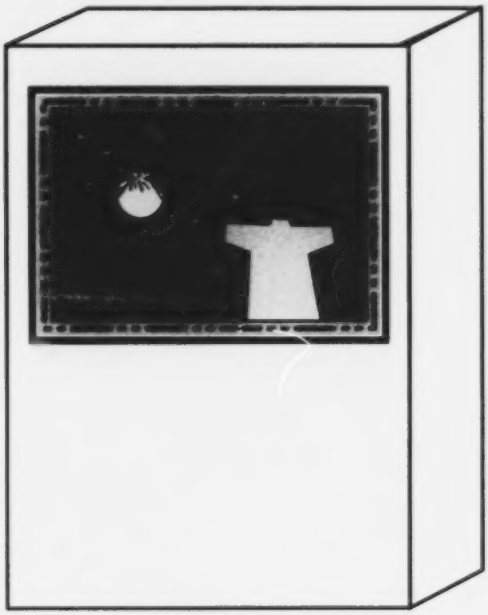
Hang old sheets or mural paper from two parallel lines. Cut a hole in the front sheet for the stage and paint scenery on the back sheet.

Slit a large box to create a cardboard screen with four panels. Cut the cardboard into the shape of a building with holes as windows for the puppets' to perform.

Other variations: Cut cardboard into a hill shape and set the action both on the hill and under it (especially good for wildlife puppets). Or cut it into a tree shape and set the action on the limbs and in the trunk.

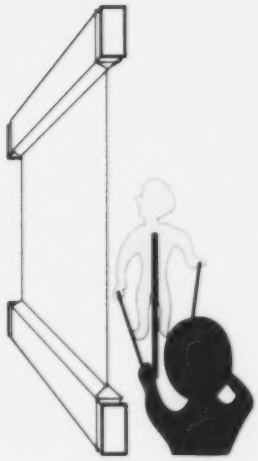


Cut a hole in a large cardboard box. Paint scenery on the inside and decorate the outside.

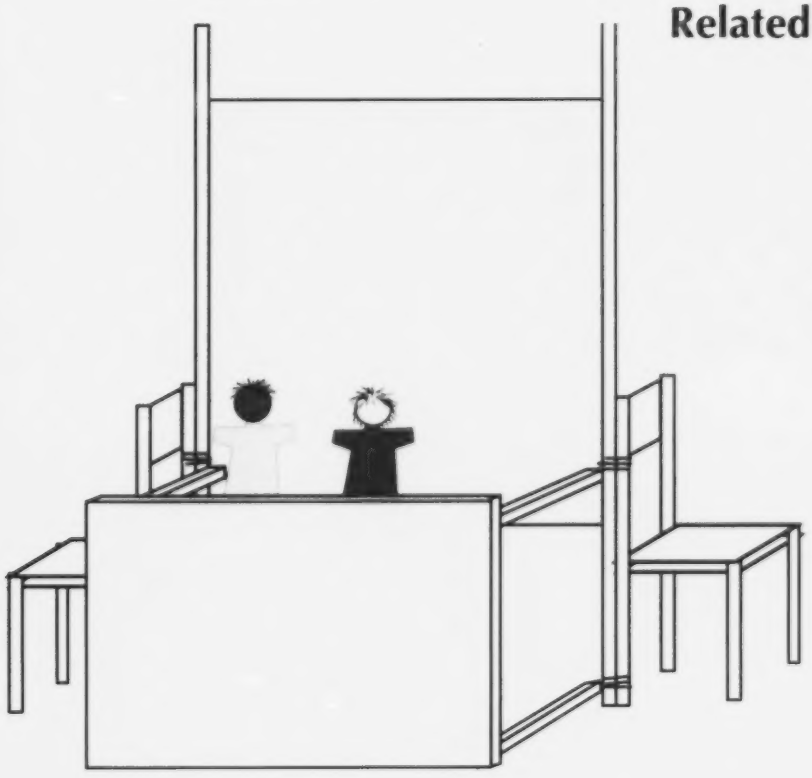


Wrap ends of a sheet around boards and hang to create a taut shadow puppet screen. Place light behind the puppeteers standing behind the screen. Darken the room.

For scenery backdrops try painting scenes on butcher paper, window shades, old tablecloths, curtains, or sheets. Don't limit yourself to two dimensions—build scenery out of cut construction paper folded, rolled, torn, crinkled, or curled to resemble the textures of the scene.



Lay a table on its side to hide the puppeteers. Hang butcher paper with scenery from poles tied to chairs.



Related reading

Baird, Bil. *The Art of the Puppet*. New York: Bonanza Books, 1973.

Philpott, Violet and McNeil, Mary Jean. *The Funcraft Book of Puppets*. New York: Scholastic Book Services, 1976.

Puppets: Art and Entertainment. Washington, DC: Puppeteers of America, 1980.

Ross, Laura. *Hand Puppets: How to Make and Use Them*. New York: Dover Publications, 1969.

A PIECE OF PITTSBURGH

Riverscape Teacher's Guide

Let the play begin!

Play is a child's work. The Pittsburgh Children's Museum is dedicated to providing children with exciting environments for active learning. This series of guides will help teachers stimulate their students' natural impulse to learn through play. Pick and choose from our suggestions to find activities that suit your class goals before, during, and after your museum visit.

Capture the hustle and bustle of a Pittsburgh workday of years ago: steer a packet boat down the Ohio River, load vegetables and produce, and sell them in our storefront.

Inside...

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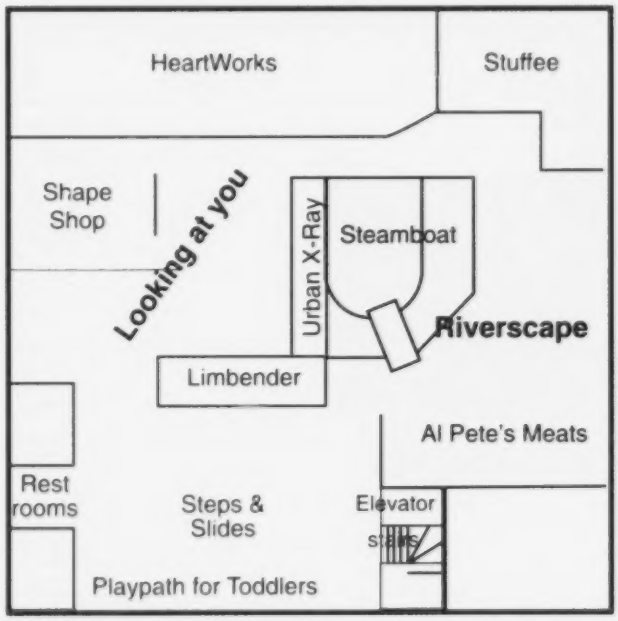

BASEMENT

The Pittsburgh Children's Museum

Funded by the Vira I. Heinz Foundation.
Susan K. Donley, author, illustrator, designer.
Lois Winslow, project director.

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A word to teachers

Think of this guide as a menu from which you can choose activities to meet *your own* instructional objectives—no one expects you to have time to do everything! Learning activities are grouped for appropriateness before, during, or after your museum visit. We suggest that you consider at least one activity from each grouping so your students are both prepared for their visit and able to connect their museum and classroom learning. Activities appropriate to various age levels are marked:

preschool (three–five-year-olds)

early elementary (kindergarten–second grade)

elementary (third grade and older)

Don't let these age designations stop you from adapting *any* idea that suits your goals.

The worksheets in this guide are not available at the museum. If you choose to use them, make copies for each of your students from the duplication masters in this guide and bring them along on your visit. And don't forget pencils!

Riverscape theme

Pittsburgh's past as a trading place; the rivers as transportation; the economics of buying and selling goods.

Classroom connections

Riverscape is theater-like set that can serve as a stage for active learning on several themes at various age levels. The scene is an "abbreviation" of 1880–1920 Pittsburgh called to life through murals of actual photographs of the era and scale reproductions of a steamboat, gangplank, bridge, and retail store. A steamboat docked on the Monongahela Wharf waits to be loaded or unloaded. Crates of chickens, baskets, and fruits and vegetables can be delivered on dollies to the boat or store. The store has bins and a cooler for groceries and a scale and cash register on the counter.

Preschool

Preschool children immediately begin to sort the groceries into categories and begin to play store. On the boat they quickly discover the steering wheel and, with help in learning to use the dollies, begin to load and unload the boat. Preschoolers usually need little motivation to become involved, but might need encouragement to try something new. They are ready to make the connection to class discussion of ***transportation*** systems and ***stores***. Links to ***math*** and ***science*** can be made with ***sorting***, ***counting*** (groceries in the bins or money in the cash register), ***weighing*** (heavy vs. light). They also may be ready to talk about how goods were delivered and what stores were like in Pittsburgh a long time ago (basic ***history***). The suggested activities below provide ways to structure the children's play to involve them in cooperative problem-solving using ***language*** and ***hands-on manipulation*** of materials as they learn basic knowledge of Pittsburgh's river past.

Elementary

When left alone elementary students also intuitively load and unload the boat, sort groceries, and play store, but soon these activities lose their challenge. For third and fourth grade students, *Riverscape* is the ideal way to introduce or review the required ***Pittsburgh history*** unit through challenging, cooperative play. For all elementary students, *Riverscape* can reinforce ***social studies*** themes about ***history*** (how stores, transportation, jobs, etc. have changed; how Pittsburgh has made its living over the years), ***economics*** (trade; where food comes from; how a storekeeper buys goods and sells them again), and ***geography*** (how transportation systems meet our needs). ***Math*** and ***science*** concepts are also used: counting, sorting, weighing, making change, using simple machines (wheel, balance, ramp, etc.). The background information and activities for before, during, and after your museum visit will help you direct your students' play to make these classroom connections through ***language arts***, ***creative dramatics***, ***music***, and ***art***.

Background information

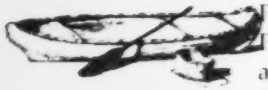
Riverscape is a natural extension of an elementary school unit on Pittsburgh history, or a brief introduction to Pittsburgh's river history to younger elementary students. Use the brief summaries below to introduce or review Pittsburgh's riverboat days with students before your museum trip or simply as background material to refer to as you discuss your *Riverscape* experience before, during, and after your museum visit.

The following is based upon Pittsburgh History & Landmarks Foundation's popular school outreach program *Portable Pittsburgh*. Many children are already familiar with this approach from having a docent visit their classroom (call PHLF at 471-5808 if you are interested). *Portable Pittsburgh* breaks Pittsburgh history into six eras, each named after an easy to remember Pittsburgh nickname from the era:

Forks of the Ohio: Native American Crossroads (before 1755)
Fort Pitt: Military/Frontier Outpost (1755–1795)
Gateway to the West: The Commercial Town (1796–1851)
Iron City: Early Industrial City (1852–1876)
Steel City: Manufacturing Metropolis (1877–1945)
Renaissance City: Corporate Center (1945–present)

Riverscape depicts Pittsburgh's rivertront as it was during the Gateway to the West, Iron City, and Steel City eras.

Forks of the Ohio: Native American Crossroads (before 1755)



People have lived in Pennsylvania between twelve and eighteen thousand years. The original Americans descended from the Asian migrants who crossed over the Bering Strait twenty thousand years ago and slowly inhabited North and South America.

The first Americans brought little from Asia except language, the mastery of fires, a few tools, and simple forms of social organization based on kinship. They knew nothing about pottery or farming. They were no more and no less advanced than humans in Europe, Asia, and Africa were at the time.

Eleven thousand years ago Indians were nomads, hunting big game with a stabbing spear, roasting meat, and wearing clothes made of animal skins. Gradually they began to live in family territories and their diet became more varied through fishing and gathering roots, nuts, and berries.

Six thousand years ago they had developed canoes to travel the rivers and a spearthrower to allow them to hunt more accurately.

By three thousand years ago, Indian livelihood had evolved from dependence on hunting, fishing, and gathering wild plants, which required them to wander, to a more stable economy based on agriculture, which encouraged village life. They cultivated corn (maize), squash, and beans—great agricultural discoveries, which became the Indian's chief gift to the rest of the world.

Since Pennsylvania's uncleared forests provided little grassy grazing land for livestock, hunting wild animals for meat was easier than caring for them in captivity. Hunting parties provided meat for the whole village.

Trade between Indian towns was brisk. All of Pennsylvania was covered with a network of 18-inch-wide footpaths, at least as numerous as today's roads. Without beasts-of-burden or knowledge of the wheel, they carried everything in back-packs or other specialized packs.

Western Pennsylvania Indians also put the rivers to good use as "roads." They travelled the waters with canoes hollowed out of logs ("dug-outs") or boats made of animal skins stretched over a frame of tree saplings lashed together in a bowl shape.

Messages were painted on trees along the way in a picture language that any Indian could read regardless of tribe or language. The forest was full of "gossip" about battles and hunting excursions for alert eyes to read.

Indian population was increasing, town life had developed, hunting had declined, and farming had become intensive. Then the white Europeans came to America. In a very short time the Indian population was decimated by gunpowder and European diseases. In trade for guns and metal tools, white traders required the Indians to supply furs. The fur trade disastrously depleted the supply of game and radically changed the Indian economic and social structure—for the worse.

Fort Pitt: Military/Frontier Outpost (1755–1795)

Without the rivers there would not have been a city of Pittsburgh. On an exploration visit just before the French and Indian War, George Washington chose a site for Fort Prince George in the wilderness at the Point because "it has command of all the rivers." During those early years canoes supplied transportation for the French and British soldiers who fought over this little piece of land. (Whoever controlled the "Forks of the Ohio" would command the Ohio and Mississippi Rivers, which became water highways through the middle of the future United States.) The French had captured the brand-new Fort Prince George and built their own Fort Duquesne, which they defended for three years. After the fighting was over in 1758, the British had won back the Point, built Fort Pitt to defend it, and started the little village of Pittsburgh.

Gateway to the West: The Commercial Town (1796–1851)

As the frontier moved westward over the Allegheny Mountains and beyond, Pittsburgh with its rivers became a vital link in trade and communication between the eastern cities and the Ohio and Mississippi Valley. Manufactured goods from the east were difficult and expensive to ship over the mountains by Conestoga wagon. On the other hand, the rivers made shipping goods to the west easy and inexpensive. Pittsburgh's goal became to make as much as possible for itself to avoid the high cost of goods from the east and to sell what it made downriver more cheaply than eastern cities could. So Pittsburgh started manufacturing.

VIEW OF THE CITY OF PITTSBURGH IN 1817.

Taken from a sketch drawn by Mrs E.C. Anderson Wife of Jno Anderson Esq of the Philadelphia Bar while on her Wedding Tour in 1817.

Pittsburgh in 1817. Pittsburgh History & Landmarks Foundation.

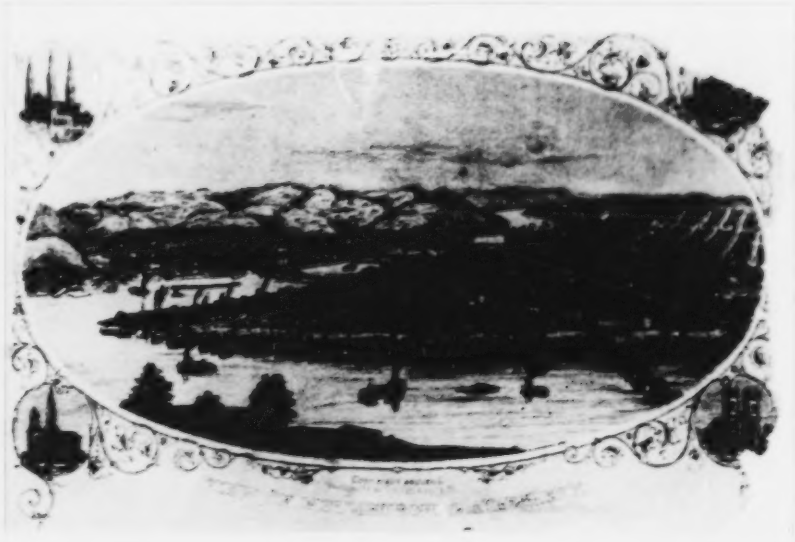
Boatmaking was Pittsburgh's first important industry. Boatyards made flatboats shaped like rafts to sell to settlers who came over the mountains and stopped in Pittsburgh on their way further west down the river. For their trip they would buy flour, corn, chickens and other food supplies brought to Pittsburgh by nearby farmers. After reaching their destination, settlers broke their flatboats apart and used the lumber to build new houses or barns.

Pittsburgh boatyards also made keelboats with pointed fronts that could float down the river and be poled back up. River tradesmen bought supplies from farmers and manufacturers in Pittsburgh and took them by keelboat downriver to sell. Keelboatmen took four to six weeks to make the trip downriver from Pittsburgh to New Orleans, but four to six months to pole their boats back upriver. After 1811 Pittsburgh began to make steamboats that used coal and steam instead of muscle power to push the boats upriver. Everyone except keelboatmen liked the steamboats' speed and their lower shipping costs.

In addition to downstream traffic on the Ohio River, steam towboats pushed barges full of coal along the Monongahela as early as the 1830s. Steamboats were not used much on the Allegheny, but by the end of the 1820s great lumber rafts drifted into Pittsburgh from forests in the north.

Pittsburgh also began to make glass during this period. Glass was one of the hardest things to ship over the mountains, so people in Pittsburgh started their own glass factories. And the rivers were smooth highways to ship the glass downriver without breaking.

Most people around Pittsburgh, however, still farmed for a living. Once farmers started growing more than their own families needed, they sold the extra to river traders to take downriver to sell. Some of Pittsburgh's other early industries depended on farm goods for raw materials: wool and flax became cloth; grain became liquor; livestock became meat, lard, and tallow for lamps and candles, and leather for saddles and shoes. These goods were also shipped downriver to sell.



Pittsburgh in 1859. Pittsburgh History & Landmarks Foundation.

The rivers were a wonderful form of transportation for Pittsburgh during the first half of the 1800s—when they worked. However, they froze in the winter; without locks and dams their summer water levels were too low to float a boat. In the spring, the river was high and fast for boats to travel easily—except when they flooded and it was too dangerous! And the rivers did not flow to the east, so wagon roads were still the only link to the east until a canal was built in the 1830s to connect Pittsburgh by water to Philadelphia. Even the canal was not a money-maker because of the ingenious, but expensive, incline system needed to portage the canal boats over the mountains between flat areas.

Of course, as convenient as the rivers were for travelling on, they were terribly inconvenient to travel around! People made a good living operating ferry boats, which were the only way to cross Pittsburgh's rivers at first. The first bridges—covered wooden spans with six to eight piers—were built across the Monongahela and the Allegheny in 1820. Unlike today, people did not commute across the rivers—most people lived within a short walk to work. The bridges mostly carried merchants, farmers, and others who carried goods in horse-drawn wagons across the rivers to Pittsburgh's neighboring towns.

Pittsburgh's river traffic was so impressive in 1828 that Mrs. Ann Royal a celebrity from Washington, D.C. wrote:

> "Of all the towns in our country Pittsburgh excites most astonishment. Everything done in other cities is thrown into the shade in Pittsburgh. Even in the building of steamboats it excels by a long way our great city of New York. You see nothing but columns of smoke rolling out of manufactories in every part of the city and in every street. Go to the River Monongahela and you see nothing but steamboats two stories high and two tiers of windows precisely like a house with gable ends."

Iron City: Early Industrial City (1852–1876)

When the first trains came to Pittsburgh in 1851, the rivers did not go out of business, as many people feared. Shipping by water was still much cheaper than by rail. One towboat could maneuver many barges that each carried more than several railroad cars. Going downriver was especially economical, because the current helped supply the energy to transport the load. The railroad's big advantage was being able to run anywhere, while rivers had to flow on course.

The trains and rivers often worked together. Whenever possible, railroads ran their tracks on the flatlands along the rivers, which had a knack for choosing the flattest route between two points! Often trains would dump their cargo into barges to continue the journey down the river or barges would be unloaded onto trains to disperse their loads across the countryside.

The nationwide demand for coal to run trains was a boost to western Pennsylvania's economy, and tons of that coal was transported by barge. Demand was also great for Pittsburgh iron for building trains and track throughout the nation. Innovations in the iron-making process allowed iron furnaces to burn coke—a purified form of coal—rather than charcoal as fuel. As a result, iron factories moved from the country where the wood was to the flatlands along the rivers. At riverside coke could be delivered by barge or train and iron finishing operations requiring water could have an unlimited, free supply. Although these factories were

Pittsburgh, c. 1880. Carnegie Library, Pittsburgh.

small by later standards—they usually employed less than 200 workers, most highly skilled—they were larger than ever before.

Pittsburgh's glass factories multiplied and also located on the flat river shores. The rivers were a source of raw materials for glassmaking. Coal for firing glass furnaces was shipped in on barges and sand to melt was dredged from the river bottoms. By 1870 Pittsburgh made half the nation's glass.

To make the rivers more reliable during periods of high and low water, the Army Corps of Engineers built training walls along the Ohio to force the meager summer flow into deeper channels. Dams for the river were under discussion, but none had been built by the 1870s. The Monongahela had a series of toll dams and locks built by a private company to create sluggishly flowing pools of water deep enough for year-round navigation.

Boatyards continued to build steamboats and flatboats. River packets carried passengers and package freight to towns near and far. A new type of boat appeared on the Allegheny in the 1860s after petroleum was discovered in Titusville and Oil City: the bulkboat, a primitive tanker that supplemented the flatboat-like guipher that carried oil in barrels. During the 1860s Pittsburgh became the nation's largest oil refiner.

Bridge construction continued. Roebling—who later became famous for building the Brooklyn Bridge— built two wire cable suspension bridges, but otherwise iron was still not always chosen for bridge-building in the Iron City. The Union Bridge between Pittsburgh and Allegheny (the North Side), built in 1874, was an old-fashioned wooden covered bridge that lasted into the 20th century.

The coal pushed up and down the rivers to heat buildings and fuel factories, trains, and steamboats created the black smoke that Pittsburgh was becoming famous for. Traveler Anthony Trollope wrote in 1860:

> "Pittsburgh...is without exception the blackest place which I ever saw.... As regards scenery it is beautifully situated, being just at the juncture of the two rivers, Monongahela and Allegheny.... Nothing can be more picturesque than the site.... Even the filth and wondrous blackness of the place are picturesque when looked down upon from above.... I was never more in love with smoke and dirt than when I stood here and watched the darkness of night close in upon the floating soot which hovered over the housetops of the city."

Steel City: Manufacturing Metropolis (1877–1945)

During the Steel City era, Pittsburgh's way of travelling the rivers did not change, but the scenery from the rivers changed dramatically. When Andrew Carnegie's Edgar Thomson Works opened at Braddock in 1875, it introduced cheap, high-volume steel to the Pittsburgh region and started a revolution that changed the riverscape forever.

In the 1880s and 1890s steel mills and coke plants came to rural river towns that had hardly existed before: Hazelwood, Homestead, Munhall, Duquesne, Clairton, Aliquippa, and Ambridge. Great steel plants extended for miles along the river shores, encouraged by cheap, flat riverside land and barge and railroad transportation for raw materials and finished products. The scale was colossal, with a row of blast furnaces turning out great volumes of iron and clouds of black smoke. Bessemer converters and later open-hearth furnaces converted the iron to steel as they lit the sky orange during the night. Rolling mills and other huge machines converted the steel ingots into usable products that were loaded onto trains or barges. A large steel plant had everything nearby: coke ovens, foundries and machine shops to make plant equipment with boiler and power houses located next to the plant to keep it independent. All

of these buildings and machines were crowded into the river flats wherever they fit. Densely populated company towns housed new immigrants close to the mills where they worked 12-hour shifts.

On the rivers, traffic was never heavier. Barges clogged the rivers with their loads of coal, limestone, and iron ore bound for the steel mills. Boatbuilding was still strong and some of Pittsburgh's steel went into building more barges and riverboats.

In 1885 the Army Corps of Engineers began dredging and damming the Ohio River to create a channel that was deep enough for boats to travel year-round. The same process—canalization—was finished on the Allegheny River in the 1930s. In 1897 the toll lock and dam system on the Monongahela was turned over to the Army Corps of Engineers. The result was a minimum depth of nine feet year-round on all three rivers—in the past a drought could interrupt river traffic for weeks and people could wade across the rivers! Great floods devastated shore areas of Pittsburgh in 1907 and even worse in 1936. To prevent that kind of destruction again, reservoirs were built upriver on the Allegheny and the Monongahela to hold back excess water.

Pittsburgh, c. 1950's. Pittsburgh History & Landmarks Foundation.

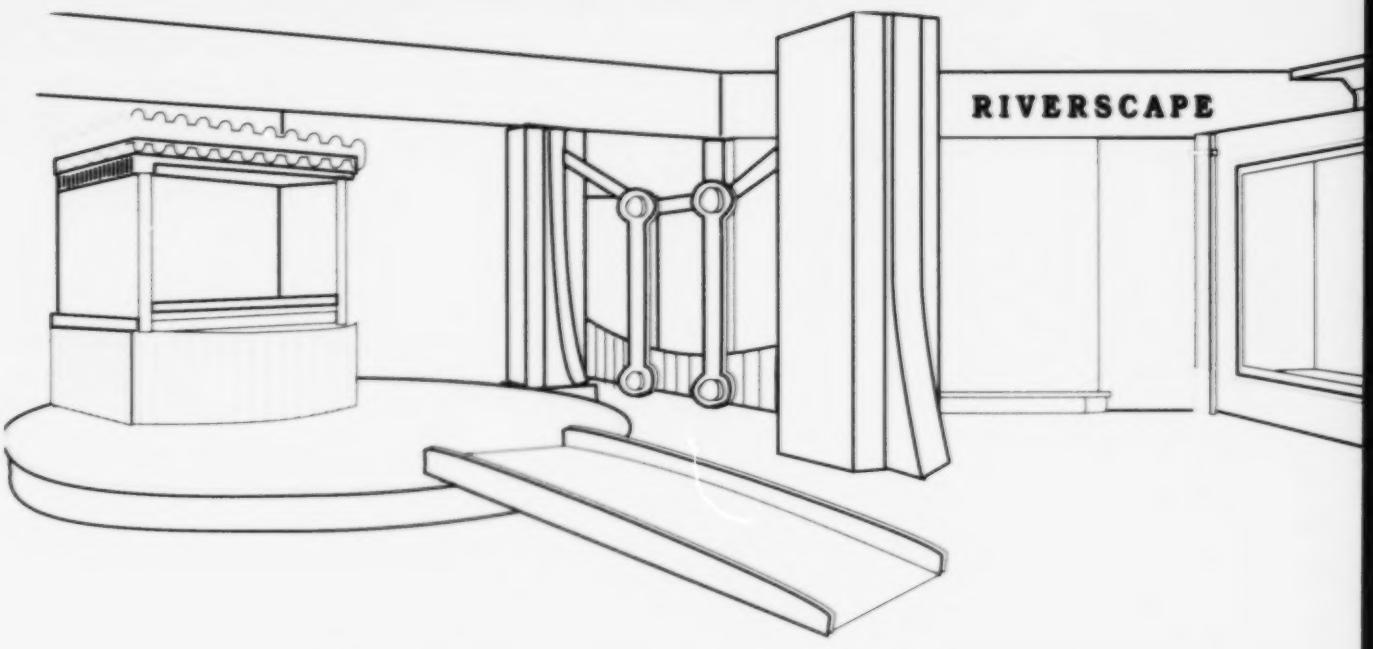
The water that ran in Pittsburgh's rivers, however, was filthy and polluted. Steel plants and other mills dumped hot waste water full of dangerous chemicals right into the rivers. Fish no longer survived in the water. Human waste was dumped untreated into the rivers, too. Worst of all, the city drinking water was pumped directly from this same river to homes and businesses without treatment. As a result Pittsburgh lead the nation in typhoid fever until 1907 when it built the waterworks in Aspinwall to treat the water. The fish still had to wait until water pollution laws went into effect in the 1950s, 1960s, and 1970s before they could make a comeback.

Through the 1920s the Monongahela Wharf was still a busy place for steamboats to load and unload packets of freight and passengers. Many customers would go marketing directly on the Wharf to pick up bargains in fruit, vegetables, and live chickens right off the boats. After the 1920s drivers desperate for parking places for their new automobiles would park on the Wharf and gradually the marketing and steamboats began to fade away.

Pittsburgh's rivers and ravines have been great breeders of bridges. Allegheny County has almost 1800 bridges today, most of them built in this period. Before 1896 every river bridge charged a toll, but starting with the Brady Street Bridge, passage became free on one bridge after another.

Renaissance City: Corporate Center (1945–present)

Rivers have been and still are Pittsburgh's most important physical feature. River traffic has slowed down tremendously: Pittsburgh's boat building industry and the other heavy industries it served no longer thrive. Today the rivers separate our living space into cozy neighborhoods and we cross their bridges on the way to school and work. Now that the rivers are clean, we love the way they look and use them to have fun fishing and boating. As in the past, the rivers may be a key to future economic development as steel mill sites find to other uses.



Before your visit

Tell the story of Mike Fink, Pittsburgh's own Paul Bunyan-style folk hero.

A real person whose exploits later became clouded in legend, Mike Fink was born at Fort Pitt in 1776. He became a keelboatman on the Ohio and Mississippi Rivers. The trip took about four to six weeks from Pittsburgh to New Orleans in the spring when the water was high and four to six months to return against the current poling the boat or dragging it by rope from the shore.

Many people looked down on keelboatmen because they were often Scotch-Irish—a new immigrant group—and they never settled down in one place (naturally!). To raise their own self-esteem and to pass time on the river, keelboatmen would create impromptu speeches and yell them across the river to the crews of other keelboats. Crews would brag back and forth until they were out of voice range. Mike Fink's biggest rival on the river was Davy Crockett. Many of the brags and other stories of the frontier boatmen were repeated from memory by riverboat crews long after keelboat times. Read "Fink's Brag," one of the brags that was handed down, to the class:

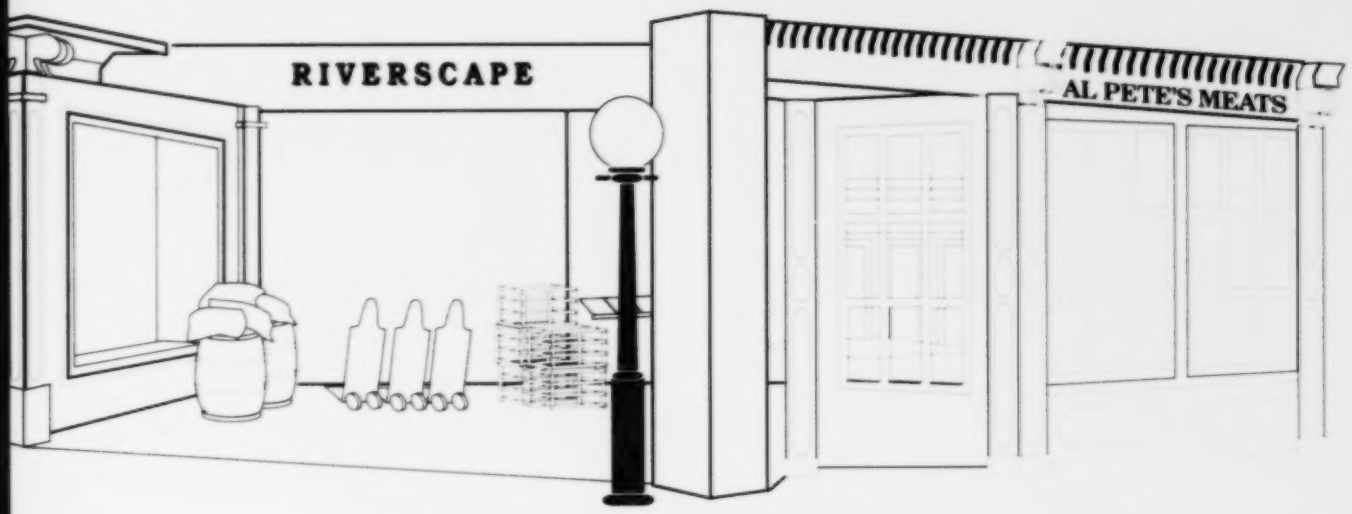
Fink's Brag

I'm a Salt River roarer! I'm a ring-tailed squealer! I'm a reg'lar screamer from the ol' Massassip'! I'm the very infant that refused his milk before its eyes were open, and called out for a bottle of old Rye! I love the women an' I'm chockful o' fight! I'm half wild horse and half cock-eyed alligator and the rest o' me is crooked snags an' red-hot snappin' turkle. I can hit like fourth-proof lightnin' an' out-jump, out-shoot, out-brag, out-drink, an' out-fight, rough an' tumble, no holts barred, ary man on both sides the river from Pittsburgh to New Orleans and back ag'in to St. Louice. Come on, you flatters [flatboatmen], you bargers, you milk-white mechanics [steamboat men], an' see how tough I am to chaw! I ain't had a fight for two days an' I'm spilein' for exercise. Cock-a-doodle-do! ["errors" in original]

Ask students to make up a brag they would yell across the river to another flat boat crew: What kind of brag would you brag to another boatman from Pittsburgh? What would you brag to a crew from Cincinnati or New Orleans? Bring your brags with you when you visit The Children's Museum and brag them off the bow of our riverboat!

Play store and discuss how stores get the groceries they sell.

Set up a grocery store in the preschool dramatic play area. Stock the store with modern pre-packaged foods (empty boxes and cartons). If space and number of groceries permits, set up the store with self-service aisles, baskets or carts, and a cashier at a check-out counter, like a modern supermarket. Discuss



the process of shopping with the children: making a list, driving or walking to the store, getting a cart, wheeling it down the aisles and filling it with food, going through the check-out, packing the groceries in bags, taking them home and unpacking them.

Ask questions to start a discussion of how the store gets its food: *How does the store get its groceries to sell? Has anyone ever seen a truck unloading at the store? Where did the truck get the groceries?* Explain that food is grown on farms and sold to factories to be made into our favorite foods (ask them to name favorite foods that come in packages—cereal, hot dogs, soup, ketchup, etc.). The factories sell the food to the groceries stores, then the grocery stores sell the food to us. Food is bought and sold several times before we buy it!

Tell children when they go to the museum they will see what stores were like long ago and how they got their groceries to sell. (Follow-up with "Set up an old-time store and steamboat..." in **After your visit** section below).

Read a poem about an old-time general store.

After discussing the difference between modern supermarkets and Al Pete's Meats, ask the children where they think people bought things that were not food in Pittsburgh long ago. Dry goods stores sold clothing, fabric, hardware, furniture, etc. (like a department store). General stores sold a little bit of everything and were especially important in small towns where they were the only store in town. Read and discuss the following poem about an old general store. How was it the same as and different from Al Pete's Meats? ...a modern department store?

General Store

Someday I'm going to have a store
With a tinkly bell hung over the door,
With real glass cases and counters wide
And drawers all spilly with things inside.
There'll be a little of everything:
Bolts of calico; balls of string;
Jars of peppermint; tins of tea;
Pots and kettles and crockery;
Seeds in packets; scissors bright;
Kegs of sugar, brown and white;
Sasparilla for picnic lunches,
Bananas and rubber boots in bunches.
I'll fix the window and dust each shelf,
And take the money in all myself.
It will be my store and I will say:
"What can I do for you today?"

—Rachel Field

Clifton Fadiman, ed., *The World Treasury of Children's Literature* (Boston: Little, Brown and Company, 1984), p. 106.

Learn "Glendy-Burke," a Stephen Foster song about a riverboat.

Stephen Foster was a famous composer who was born and grew up in Lawrenceville, a small Allegheny River town that is now part of Pittsburgh. He wrote many songs that are still famous today: "I Dream of Jeannie with the Light Brown Hair," "My Old Kentucky Home," "The Camptown Races," "The Swanee River," and more. Many of these songs were meant to be sung in minstrel shows—the entertainment on long riverboat cruises.

Foster wrote one song about an Ohio River steamboat, the "Glendy-Burke." Have your music teacher teach students the song, which is reprinted on pages 15 and 16, or borrow a tape of the song from The Children's Museum if musical talent is lacking on your faculty! The Stephen Foster Memorial granted permsission for us to reprint this song. When you are in Oakland, stop by and visit their museum right next to the University of Pittsburgh's Cathedral of Learning. The singing group *Dear Friends* performs Stephen Foster songs there throughout the year.

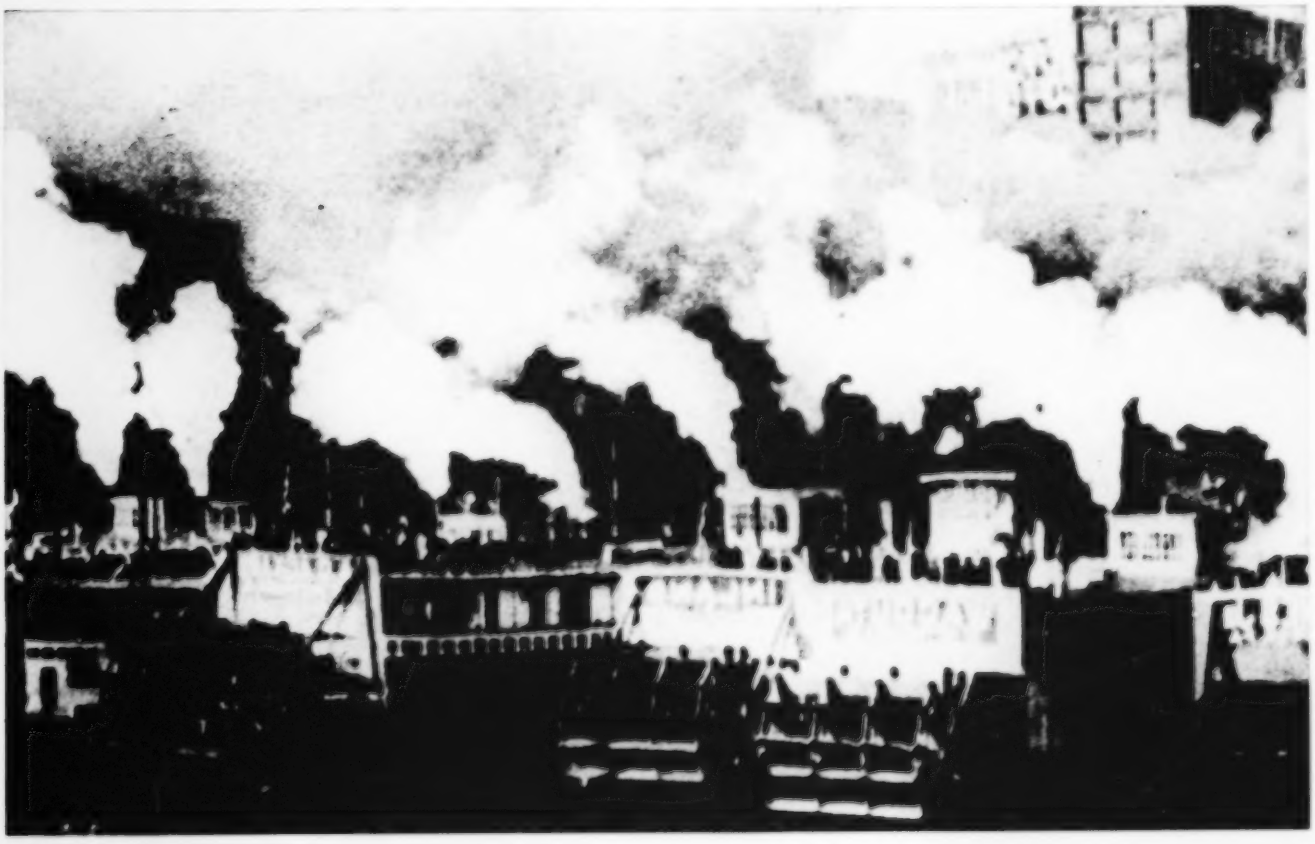
Monongahela Wharf, c. 1900. Pittsburgh History & Landmarks Foundation

During your visit

Suggestions for using Riverscape with early preschoolers.

Quickly introduce the parts of the Riverscape exhibit: *Here is a place to play that looks like Pittsburgh looked many years ago—before your grandparents were even born. Over here is a steamboat—it sailed on the river and pulled up here to unload and pick up things to sell somewhere else. There is Al Pete's Meats—remember I told you we would see a store from Pittsburgh a long time ago—well, that's it. Al and the steamboat crew probably have some work to do—what do you think they will do? How will Al get his groceries to sell?* Then divide the group and let part start out on the boat, part in the store. Or see the next two activities below for help structuring the play.

As the children play they will probably need help learning to use the dollies. Let them try loading the boat first without the dollies, then demonstrate the dollies and point out how much more they can carry with the help of wheels. As children begin settling into their jobs, you might encourage them to try a new activity by giving them a problem to solve: *How much do you think Al*



the storekeeper will pay for that food on your dolly? What are you buying food for? Do you have a large family? Are you having a party?, etc. Even if you do not structure the play as suggested below, those activities help you spark new play action if children are settling into patterns.

"Side-coach" activities on the boat.

This activity is a way to focus children, who will probably be "wound up" from the Limbender, the climbing exhibit in front of *Riverscape*. Let a couple of children be the captain and crew. This is one way to review some of the information about Pittsburgh during its river heyday that they have talked about in class.

We're on our way down the Monongahela River to Pittsburgh.

Uh-oh, Captain, I see a snag in the river up ahead! What are you going to do? Whew, that was a close one, I'm glad we have an experienced crew!

What are we carrying to Pittsburgh? Who is traveling on this boat [let children make up identities]? Where are you coming from? Where are you going?

What do we see along shore? Who is that waving to us—let's wave back! What else is traveling on the river? What cargo are they carrying? What cargo is going up the river? What is going down the river?

Oh no, the water is low here! We'll have to wait till after a rain before we continue. What shall we do while we wait? [Sing a song, read Mike Fink's Brag, brag some of the students' Brags, or play a game]. *Uh-oh, there's the rain, everybody take cover—we're getting all wet!*

Whew! I'm glad the rain is over now we can continue to Pittsburgh. Ready Captain? Blow the whistle [everyone make a steam whistle sound]. *How do you think we'll know when we get to Pittsburgh? What will you see? Hear? Smell? Someone tell us as soon as you see one of these clues.* [When they do…] *Great, we must be close to Pittsburgh. What else do you see?* [encourage them to name Pittsburgh landmarks—steel mills, inclines, bridges, etc.].

Well, we're getting close now, let's look for the Monongahela wharf where we will stop—it should be on the right. Here's a place to tie up—the captain has to be very careful—a lot of other boats are crowded into the wharf unloading people and cargo. [Point out photo of wharf on wall]. *When the captain gives the order, it will be safe for us to go down the gangplank and get to work unloading the boat.* [Wait for captain to give the order, then allow children to leave boat on gangplank and begin to unload the boat with the dollies and crates at the general store. Goods can be loaded back onto the boat for a continued trip down the Ohio if you wish].

Assign roles for riverfront play.

Children past pre-school age may not be as spontaneous in their play and may enjoy having roles assigned and problems to solve as they play. Cut out the cards on page 10. As children leave the boat give each a card with their role and what their character's goal or problem is.

Reading a photograph.

The four photographs in this exhibit are from the the City Photographer's Collection, a special collection in the University of Pittsburgh's Archive of Industrial Society at Hillman Library. Old photographs contain valuable information about the past to historians who can interpret them. Kids learn well from visual sources and have fun taking on the role of history detectives deciphering photographs to find clues about life in the past. Before leaving the exhibit gather students around one of the photos and unlock its meaning by asking the questions in the following three step method. (Teacher's "script" is in italics, but please feel free to improvise.) You may wish to practice this skill in class before your visit—you can borrow old Pittsburgh views from the Carnegie Library photo collection.

Reading a Photograph

Let's not just rush by these photographs. I'll bet if we slow down and take a good look we'll find some clues about Pittsburgh's past. Let's think about this photo like a detective might.

Step One: *Identify*

Your first step in reading a photograph is just to look at the photo and list what you see.

Look at the photo quietly for thirty seconds (I'll time you). [Wait thirty seconds] *Now everyone turn around with your backs to the photo. Without looking back, name everything you saw, even the smallest details.* [If they get stuck, ask more memory jogging questions like *"What were the people wearing?,"* etc. When students jump to conclusions at this point, saying things like "It was a hot day," or "The people are poor," gently get them away from interpretation by following-up with *"What makes you say that?"* This usually leads them back into description and you can say *"That's a good observa-*

tion, let's save your other idea about the hot day to talk about later."]

When they think they have everything named, turn around to look at the photo again and ask them to point out anything that was missed.

Step Two: *Interpret*

Our second step is to think about what our facts mean. What theories do you have about:

What is happening in the photo?

Who are the characters?

Where was the photo taken?

When was the photo taken (year, season, time of day)?

After each offers a theory ask students what clues they used to get their theory. Then, before going to the next question, ask if anyone has a different theory.

Step Three: *Imagine*

Now the really fun part—we can make up stories about the picture:

What do you imagine happened just before this photo was taken?

What do you imagine is about to happen next?

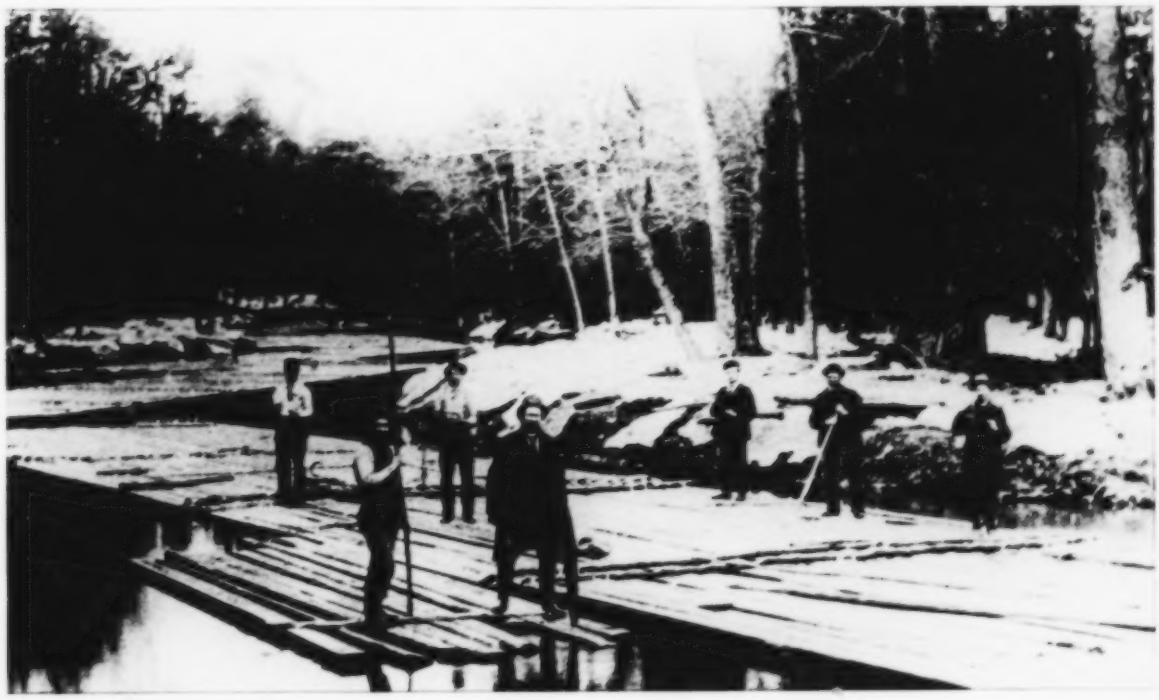
What would you like to know that the photo does not tell you?

How can you find more information about what you would like to know?

Compare with photographs of Mon wharf and East Ohio Street today.

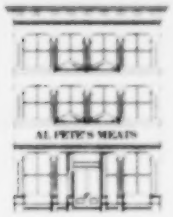
A copy of *Pittsburgh Then and Now* is available at the exhibit to help you discuss how the Monongahela Wharf and East Ohio Street have changed since the early twentieth century. If the book is not available, ask a museum staff member for it.

Early industry rafted logs down river, c. 1890's. Western Pa. Conservatory

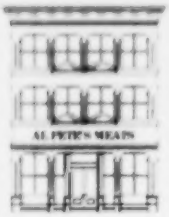


Riverscape roles

(see page 11)

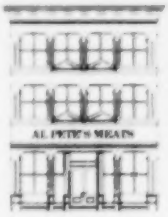


The **owner of the store**. How can the store owner sell meat and produce to make a profit? Store owners need to sell goods for more than they pay for them and they need to sell as much as possible.



The **dairy farmer** tries to make a profit by selling chickens, eggs, milk, and cheese to the store owner for as high a price as possible.

The **shipping clerk** meeting the boat. How does the shipping clerk make a profit? The clerk trys to buy goods as cheaply as possible from the boat captain, then sell them at a higher price to the store owner.

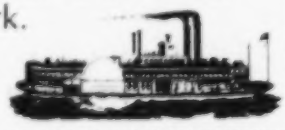


A **new immigrant** to the United States is shopping for groceries, but does not know how to speak English.

The **boat's captain** wants to get a good price for his goods and get the boat loaded and unloaded as soon as possible so it can sail on its way again down the river.

A **customer** with ten children is shopping to feed the family for as little money as possible on a regular weekly shopping trip.

A **dock worker** unloads the boat and delivers goods to the businesses that ordered them. Dock workers work hard enough to impress the captain, but not so hard that they are given more work.



A **customer** who lives alone is shopping for small portions on a regular weekly shopping trip.

A **dock worker** unloads the boat and delivers goods to the businesses that ordered them. Dock workers work hard enough to impress the captain, but not so hard that they are given more work.

A **customer** is shopping for a big fancy, family reunion.

After your visit

Set up an old-time store and steamboat and discuss similarities and differences between today's stores and Al Pete's Meats.

After your museum visit discuss the differences and similarities between modern supermarkets and Al Pete's Meats store in *Riverscape*. Ask: How was Al Pete's Meats different than the supermarket where you shop ("live" chickens, no pre-packed foods, no self-service aisles—you tell the clerk what you want and they get it for you). How did Al get his groceries to sell? How is that different from your supermarket (truck from factories vs. boat directly from farmers)? To put the time period in context suitable for preschoolers, explain that this is the way Pittsburgh was even before their grandparents were born.

Ask children if they would like to change their class store to be like Al Pete's Meats and what they would need to do to make the changes? Make the changes to the store and create a play "steamboat" with class furniture.

Discuss how Pittsburgh has changed.

Debrief after your visit and prepare students for the next activities by briefly discussing how Pittsburgh has changed since the steamboat era shown in *Riverscape*. *How has transportation changed? How did most people make their living then? ...now? How have our ways of shopping changed? What has caused the changes? How has life changed for kids your age? How has Pittsburgh's appearance changed? Why?*

Use old photographs of Pittsburgh to help stimulate discussion. Have students do some quick research on one or more of these questions and report back to the group. Better yet, ask students to invite grandparents or older friends to class and ask them some of the questions they have about Pittsburgh's past (this special kind of research is called "oral history"). If necessary, you can find information on most of these questions in the background information at the beginning of this guide. If students become particularly interested in this process they might create drawings or murals showing Pittsburgh in the past and present.

Plan Pittsburgh's riverscape of the future.

Point out the photomurals of Pittsburgh's rivers in the exhibit (which means you will need to begin this exercise during your visit) or show students photographs from one of the many excellent books showing Pittsburgh's rivers in the past. Ask the students: *What is different from today? What were some things that are gone that you would like to see back? What are some things that Pittsburgh is better off being rid of?* Most of the features that characterized Pittsburgh's riverscape during the Iron and Steel City eras—steamboats pulled up along the Mon Wharf, coal barge traffic jams, steel mills lining the banks, black smoke clouding the air—are all gone.

Many people believe that Pittsburgh's rivers are its best resource for creating new ways to make a living in Pittsburgh and new reasons for people to want to live here. With more riverfront land being cleared the time to plan Pittsburgh's future riverscape is now. Have students create a map of the three rivers or draw pictures of scenes along the river showing what the riverscape will look like in the future. Things to consider: How will people make a living, travel, and have fun? Where will they live? How important is it to preserve something of Pittsburgh's river past for future generations? How will your plan do that (a preserved iron furnace, a steel museum, a restored steamboat fleet, etc.)?

Plan a transportation system for the rivers.

Discuss how Pittsburgh's transportation system has changed: *What forms of transportation do we have today that we did not see at* Riverscape*? What kinds of transportation do we use most often? How do they make travel more convenient? What problems do these forms of transportation cause, in spite of their convenience? (traffic jams, pollution, energy use, etc.) How could Pittsburgh's rivers be used to help solve these problems. Draw and write a plan that shows how the rivers could be used to solve some of the traffic problems Pittsburgh has today.*

Read books and sing songs about the river.

Reading:

Little Toot

Songs:

"Old Man River"
"Monongehela" (Oak Ridge Boys)
"Swanee River," Stephen Foster
"The Barge Song"

Foster's Melodies.
No 43.

THE

Glendy Burk

A

Plantation Melody

Written and Composed by

STEPHEN C. FOSTER.

NEW YORK
Published by FIRTH, POND & CO. *347 Broadway.*

Boston. D. DITSON & CO. | *Cincinnati.* C. Y. FONDA. | *Pittsburgh.* H. KLEBER & BRO.

"Glendy Burke," Stephen Foster. Courtesy, Stephen Foster Memorial.

THE GLENDY BURK

WORDS AND MUSIC, BY STEPHEN C. FOSTER.

Moderately fast.
De Glen-dy Burk is a mighty fast boat, Wid a mighty fast cap-tain too; He
sits up dah on de hur-ri-cane roof And he keeps his eye on de crew. I
cant stay here, for dey work too hard; I'm bound to leave dis town; I'll

1861

Entd according to Act of Congress .D 1860 by Firth,Pond & Co in the Clerks Office of the Dist Court for the South'n District of NY

4

take my duds and tote 'em on my back When de Glen - dy Burk comes down.
CHORUS
Ho! for Lou' - si - an - a! I'm bound to leave dis town; I'll
take my duds and tote 'em on my back When de Glen - dy Burk comes down.

4861

II. Ver:
De Glen-dy Burk has a fun-ny old crew And dey sing de boatman's song, Dey
burn de pitch and de pine knot too, For to shove de boat a - long. De
smoke goes up and de in - gine roars And de wheel goes round and round, So
fair you well! for I'll take a lit - tle ride When de Glen - dy Burk comes down. CHORUS.
III. Ver:
I'll work all night in de wind and storm, I'll work all day in de rain, Till I
find my - self on de le - vy - dock In New Or-leans a - gain. Dey
make me mow in de hay field here And knock my head wid de flail, I'll
go wha dey work wid de su - gar and de cane And roll on de cot - ton bale. CHORUS.
IV. Ver:
My la - dy love is as pret-ty as a pink, I'll meet her on de way I'll
take her back to de sun - ny old south And dah I'll make her stay So
dont you fret my ho - ney dear, Oh! dont you fret Miss Brown I'll
take you back 'fore de mid-dle of de week When de Glen - dy Burk comes down. CHORUS.

4881

Looking at You
Teacher's Guide

Urban X-Ray/Self-portrait/Stuffee/Heart Works

Let the play begin!

Play is a child's work. The Pittsburgh Children's Museum is dedicated to providing children with exciting environments for active learning. This series of guides will help teachers stimulate their students' natural impulse to learn through play. Pick and choose from our suggestions to find activities that suit your class goals before, during, and after your museum visit.

View portraits of your one-and-only self from inside and outside and learn about the care and feeding of those valuable insides with our lovable seven-foot mascot.

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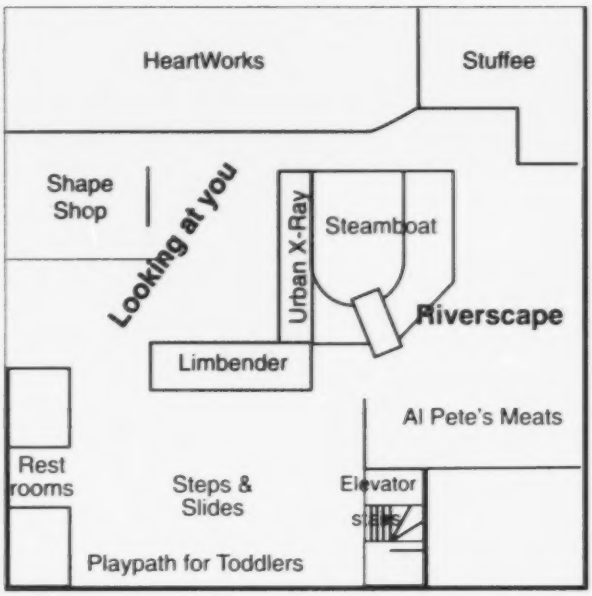


BASEMENT

The Pittsburgh Children's Museum

Funded by the Vira I. Heinz Foundation.
Susan K. Donley, author, illustrator, designer.
Lois Winslow, project director.

©1993, The Pittsburgh Children's Museum and Susan K. Donley.

A word to teachers

Think of this guide as a menu of ideas from which to choose activities to meet *your own* instructional objectives—you won't have time to do or even read everything here! Several navigational features will help you find the information you need at a glance:

- ✓Learning activities are grouped for appropriateness before, during, or after your museum visit. Consider doing one activity from each grouping so that your students are prepared for their visit and able to connect their museum and classroom learning.
- ✓Titles of learning activities are literally written as activities. Skim through them quickly to find activities that suit you.
- ✓Activities appropriate for various ages are marked:

preschool (three–five-year-olds)

early elementary (kdg.–second grade)

elementary (third grade and older)

But don't let these age designations stop you from adapting *any* idea that suits your goals.

The worksheets in this guide are not available at the museum. If you use them, make copies for each of your students and bring them along on your visit. And don't forget pencils!

Theme

From food for you to food for your cells, your body—the chemical factory—does it all with its disgestive, circulatory, and respiratory systems.

Classroom connections

There are two major, paradoxical, themes in *Looking at You*

- you the human machine: how we're all alike
- you the unique individual: how we're all different.

The *Looking at You* exhibits and this teacher's guide are not meant to be comprehensive guides to the human body's systems. The background information we provide in this guide will give you enough information to lead students through PCM's collection of exhibits on the human body and self. This information will be expressed concisely in images that will help students remember the main body functions. Fun body trivia and before-and-after activities help illustrate the jobs of the body systems. Detailed, systematic information about human biology is readily available in many other sources, including school health textbooks.

The body has parts that all work together to keep us alive if we do a few simple things to keep it safe and healthy. *Stuffee*, *Heart Works* and *Urban X-Ray* present the jobs of some of these important body systems and a few things we can do to keep them functioning well.

The exhibits can be approached from several directions, depending on your wishes for the class: From outside to inside, from inside to outside, how we're alike (our biological functions) to how we're all different. Use them to reinforce a multitude of class themes, including the human body, nutrition, the senses, movement, and figure drawing and sculpture in art.

Background information

Organ systems in *Looking at You*

Everything a living thing does depends on the physical and chemical changes that occur in its body parts. Altogether these changes are called **metabolism**.

Climate control (Urban X-Ray)

The body covering of skin and hair protect the organs underneath, regulate the internal climate—temperature and moisture—of the body, and sense touch and motion.

Support and movement (Urban X-Ray)

The bones of the skeleton, and the muscles attached to them with ligaments and tendons form a system to protect, support, and move body parts. Bones also do the important job of producing blood cells. Besides helping us to move around and stand up straight, muscles are the body's furnace, its main source of heat.

Our skeletal system gives us our shape and allows us to move any place in almost any way—walking, running, crawling, hopping, dancing. It provides the structure to "hang" all the other important parts from, allowing the whole body to resist the forces of gravity so it can function.

A good analogy for the human body's skeletal system is the structure of a building. The rigid steel frame of a modern building, like a skyscraper, acts as its skeleton, allowing the building to stand up against the force of gravity and giving the building its basic shape and space inside for rooms. The outside walls, called "cladding," are attached to the frame and give the building its appearance to the outside world, acting as its skin. But most importantly, cladding keeps out rain, snow, wind, cold, and heat so the environment inside is comfortable to the people living or working there. The building's frame is like the body's skeletal system and the cladding is like our skin. Of course, buildings don't have muscles—unless you count elevators, escalators and other moving parts. They do have plumbing, ventilation, and power systems that are a little bit like the body's.

Incredible inside information

- Your body has 206 bones. Mammals all have roughly the same number of bones in their bodies, regardless of size. Giraffes, humans, and chipmunks all have seven vertebrae in their necks, but the bones are very different sizes!

The signaling system (Me and My Shadow)

The nervous system and endocrine system control and adjust all the body parts to help them work together. The brain, spinal cord, nerves, and sense organs together make up the nervous system. Nerves use electrical impulses to communicate messages to and from the brain, nerves, muscles, and organs. Glands of the endocrine system send chemical messengers called hormones, which travel in the body fluids to the special body part that understands its message. Nerve messages are delivered in a split second, but hormones deliver their messages gradually over time.

Processing/transporting (Stuffee, Heart Works)

The digestive, respiratory, circulatory, lymphatic, and urinary systems all are involved in processing and transporting food, oxygen, and water the body needs to create the energy for life and the wastes given off during production and use of this energy.

The digestive system receives foods from the outside and converts them into simpler and simpler forms that can be absorbed through the cells' membranes. Food products that are not absorbed are transported as waste back outside the body. The digestive system—also known as the alimentary canal—includes the teeth, tongue, throat, stomach, liver, gallbladder, pancreas, and the small and large intestines.

Food enters the alimentary canal through the mouth where the digestive process begins when food is chewed and mixed with saliva. The muscular movement of the esophagus—swallowing—pushes the food to the stomach. The stomach physically mashes up food into smaller parts, like a food processor, and breaks it down into a soup with the help of strong digestive acids. The duodenum finishes mashing the food then pushes it the length of the small intestine (hardly small at 21-feet!). Most of the nutrients are absorbed from the small intestine into the blood to be used as fuel by the rest of the body, but the food parts that can't be used are sent on to the large intestine.

The liver is a complex organ with several jobs. Partly it acts like a big chemical factory. Nutrients from food digested in the small intestine are carried by the blood into the liver where they are manufactured into proteins the body can use as building

blocks. It also makes the enzyme bile, which it excretes into the small intestine to help with digestion. The liver also acts as a warehouse to store extra glucose—the special form of sugar the body makes to use as fuel. As if that wasn't enough work, the liver also filters toxins out of the bloodstream.

Incredible inside information

- The average person eats about three pounds of food a day or 1,095 pounds—more than a half ton—a year.
- Your mouth makes about 1/2 quart of saliva daily. Your whole body secretes more than seven quarts of assorted digestive juices every day.
- Food must be dissolved in saliva for you to taste it.
- Children are born with taste buds all over their mouths. By adulthood most of them disappear, leaving just 3000 mostly on their tongues.
- The small intestine is about 21 feet long.
- The digestive system is really one long tube from mouth to anus. It changes in size and shape along the way depending on the job each part does. Food takes two days to make the whole journey through your body.
- An adult's liver weighs three to four pounds, making it the largest internal organ. Skin is the largest organ of all.
- Fresh urine has no bacteria in it.
- Each kidney contains about one million tiny tubes that would measure 40 miles if stretched out.

The respiratory system takes air in and out of the body and exchanges oxygen and carbon dioxide between the blood and the air. The lungs function as a traffic regulator in a busy intersection where the light changes 15 times every minute. The inbound lanes are filled with oxygen and the outbound lanes are filled with carbon dioxide. The cells of the body need this oxygen to burn the glucose fuel from food to make energy to do their jobs—like a factory burns fuel. The waste from this process—like the smoke from the factory's stack—is carbon dioxide. The job of the lungs is to make this exchange both ways: when the diaphragm contracts the lungs inhale fresh air, the heart sends blood to the lungs to pick up oxygen and leave carbon dioxide it has carried away from the cells, then the diaphragm expands to force the lungs to exhale the carbon dioxide plus all the other gases in the air the body doesn't need.

Incredible inside information

- Your lungs are about the size of footballs.
- Lungs are the only organ in the body light enough to float on water.
- The surface area of the lungs is about 25 times the skin's.
- A cough can leave your lungs, throat, and mouth at up to 70 miles per hour.
- An adult may breathe more than 20,000 times a day. Children breathe even more.
- Lungs have no muscles of their own.
- An adult's lungs normally hold about three quarts of air, but in vigorous exercise, they may expand to breathe four quarts of air may be inhaled and exhaled.
- Only 1/6 of the air in your lungs is exhaled at a time.

The circulatory system transports oxygen, food, hormones, and wastes through the blood to and from the body parts where they are used or excreted. In the road and factory analogy above, the heart is the central power plant (like in a trolley and or subway) that pumps vehicles—fluid and cells of the blood—through a vast road system of arteries, veins, and capillaries. Arteries carry food and oxygen "trucks" to the factories (organs) were they are used and veins carry garbage trucks of waste from the factories to other organs—like the urinary system and the lungs—that are waste disposal plants.

Incredible inside information

- Every cell in your body is no more than a hair's width away from a capillary.
- Capillaries are so tiny that blood cells must file through them single file.
- 3,000 blood cells lined up would measure an inch.
- The larger the animal, the slower its pulse rate. Humans average about 70 beats/minute, elephant's about 25 beats/minute and a mouse about 500 beats/minute.
- The heart circulates the body's blood more than 1,000 times a day.
- Laid end to end, all of the body's blood vessels would measure about 60,000 miles.
- The heart is the body's strongest muscle.
- An adult has 3–6 quarts of blood depending on body size.
- Your heart is about the size of your fist.
- A complete heartbeat usually takes less than one second.

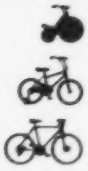
The lymphatic system defends the body against invading viruses and bacteria by removing them in lymph fluid flowing through lymph vessels. Think of this system as the police keeping law and order in the system so everyone else can go about their work.

The urinary system—kidneys, bladder, ureters, and urethra—maintain the body's fluid balance, remove waste materials from the blood and transport them outside the body through urine. They are the waste disposal and water treatment systems in our factory/traffic analogy. The kidneys are a "smart" filter: they pick out the good nutrients left in the blood that passes through them to store for later and send the bad stuff—the "ashes" left over after nutrients are burned to make energy—out of the body through the urine in the bladder.

Urban X-Ray

Urban X-Ray is an exhibit that helps visitors imagine what an everyday sidewalk scene might look like if we could be empowered with x-ray vision for just a moment. A person walking a dog, pigeons and a cat on patrol, fish in an aquarium look strangely familiar when pared down to the bare bones!

During your visit



Looking at the skeletons in *Urban X-Ray*: *How many different kinds of animals can you see? How are their structures different? Which bones are thickest in each skeleton? Why? In all of the skeletons, bones join together to provide special protection to certain areas of the body. One set of bones are strung together like beads and give animals with internal skeletons their group name. What are these bones?* [*Vertebrae* join end-to-end to create the *spinal column*. The group name for these animals, of which people are one, is *vertebrates*.] *Another set of bones in each skeleton are arranged like a cage. What are these bones called?* [ribs] *What organs do these special bone groups protect?* [spinal cord; heart and lungs] *Why do these organs deserve such special protection?*

After your visit

Look at pictures of skeletons of animals.

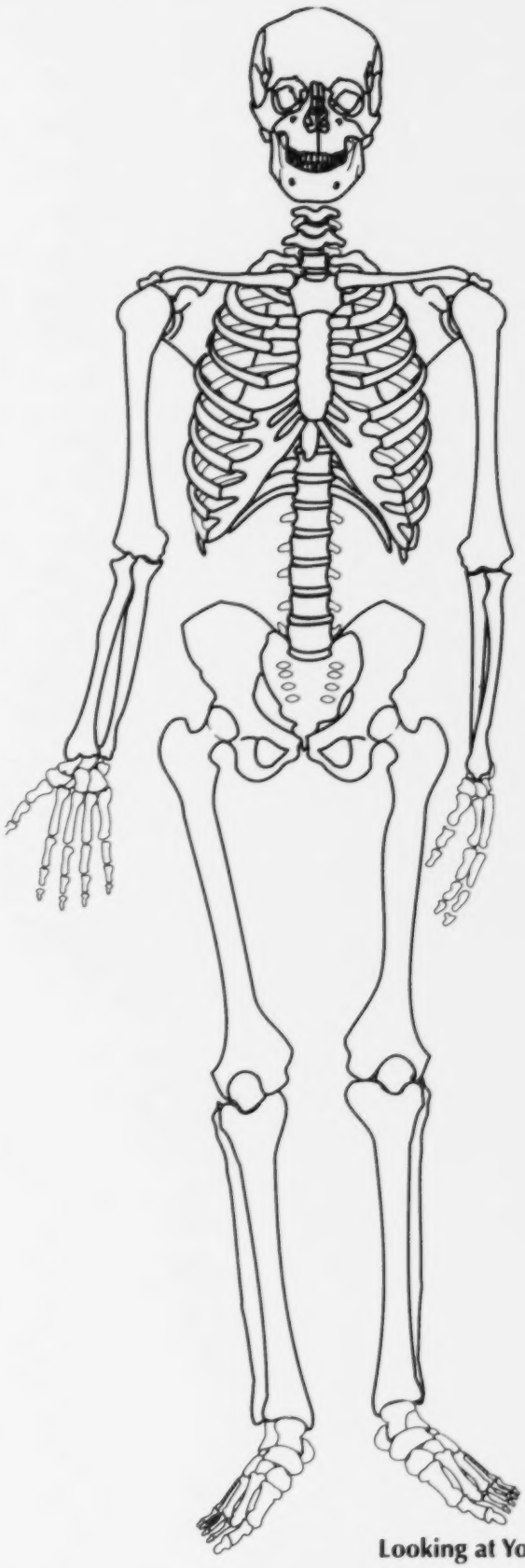
Find pictures of skeletons of different animals (check books in the library—several x-ray and skeleton books exist) and try to guess what animals they are.

Create a monster skeleton and silhouette.

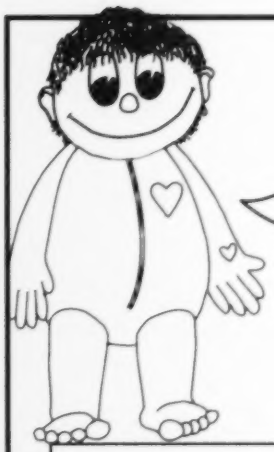
Cut a monster silhouette out of black paper. Draw the skeleton that gives it its scary shape in white chalk. (Use *Where the Wild Things Are* for inspiration.)

Match body parts with machines (p. 6).

Urban X-Ray makes a subtle point that mechanical devices like umbrellas often remind us of the human body. On the right side of the worksheet on page six are seven body parts; on the left are seven machines. Ask students to match the body part to the machine that does basically the same job. Some scholars claim that every tool is in some way an extension of the human body. If so, the following tools extend what parts of the body? a book [brain], binoculars [eyes], purse [hand], car, telephone, lamp, computer, knife. Challenge students to come up with other body/machine match ups.



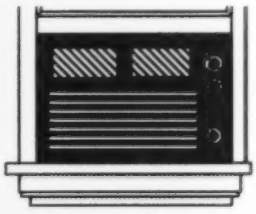
Looking at You/5



Many machines work like
parts of the human machine.

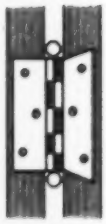
Match the machine on the left with the body part that does the same job.

Which are the simplest machines? …the most complicated?
How many more body/machine match-ups
can you think of?

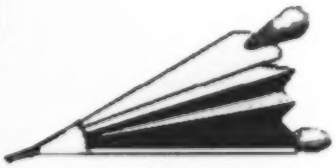


air conditioner

pump



hinge



bellows

pliers

microphone

camera

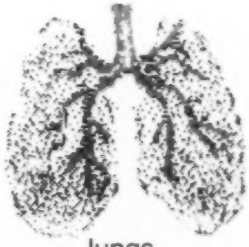
eye

fingers

ear

nose

heart



lungs

knee

Self portrait

The electronic self-portrait in *Looking at You* reminds us that as much as we are alike in the way our bodies work, we are all completely unique in the way we look, feel, dream, imagine, hope, and relate to others.

During your visit

Think of *Self-Portrait* as electronic finger painting. Children start with a video image of themselves captured on computer then transform themselves by applying paint tools on the computer touch screen. If students seem at a loss for what to do or bog down in uncreative stereotypes (drawing mustaches, but little else), challenge them to think of ways they would like to transform themselves. Ask them to name other ways they transform themselves—through dress, make-up, masks.

Make connections to other exhibits that deal with transformation of people into something else. How do people transform themselves through puppets? ...masks? Remind them of the wonderful ways Andy Warhol used colors to transform the media characters—including himself in a self portrait—into the *Myths* series seen upstairs.

After your visit

Computerized self-portraits.

If your school is equipped with computers and a scanner or video equipment, you can duplicate this activity by scanning in pictures of students or using video capture software and transforming the image with a color painting program. What ways can you find to use the resulting images (videos, laser print-outs, color print-outs, etc.)?

Photocopy self-portrait magic.

Photocopy photographs of students and hand-color them with colored pencils, oil pastels, and paints. Experiment with different effects that you can get from transparent and opaque paints. Now really experiment: photocopy multiple images, move the photo on the glass as you copy it for a blurred effect. Cut out features, exchange them with other students, reassemble into a new face, then copy again. Your class can even arrange with a class from another school to exchange faxed self-portraits. Combine this with letter writing or voice phone calls for an exciting exchange program with classes from another state or country. Contact the PCM for information on their telecommunications program, which will help you make these connections. Hang the self-portraits around the room. Compare them in a multicultural discussion: How are we all the same? How are we all different?

What's on your mind: A self-portrait of inside your head.

Your skin is just the surface of you and although your face is different than everyone else's, it is inside your head that you are really different than everyone else. You have different hobbies, interests, likes, dislikes, fears, accomplishments, people you care about, secrets, dreams, and ideas. Trace each students' silhouette on light colored paper, then have them cut out their silhouettes and glue them to a darker colored background. Ask them to draw an "Inside-of-my-Head Self-Portrait" showing the things that they think about and care about. Or they may look through magazines for pictures symbolizing the things they think and care about and create a collage "Inside-of-my-Head Self-Portrait."

Andy Warhol's Myths self-portrait incorporates a shadow

Looking at You

Before your visit

The Shape of You

The traditional early childhood life-size body tracing exercise is a natural follow-up to your class visit to *Looking at You*. [For the uninitiated: have children lay on a piece of sturdy kraft ("butcher") paper (kraft paper rolls are usually brown but can be ordered in white or colors from school art supply catalogs), trace around their bodies, have them cut around the outline to create a full-body silhouette.] Here are a few different twists on this old favorite:

Movable puppets:

Cut through the joints of the body and re-attach the joints with brass fasteners to make it move. See the *Puppets* study guide for further directions on making movable body puppets. Cut the faces apart through the mouth and use the directions for milk carton puppets to make moveable mouths as well.

Sonograms:

Draw what your internal organs might look like if you had a full-length sonogram or CAT scan—those special pictures hospitals take to show your insides. Remind children that they have the same organs Stuffee has. You may wish to use the "It's Stuffee Inside" worksheet (p. 10) as a review of Stuffee's organs.

X-rays:

Use white chalk on dark paper (brown, blue, or black) to draw your skeleton how it would if you were part of the *Urban X-Ray* display. Ask to borrow some real x-rays from a hospital or doctor's office.

Too much of a good thing:

Lead a fun discussion of the importance of eating the right kinds of foods, but not too much of them. Before having students cut their body outline, discuss times when they have eaten too much: Did you ever eat too much? What did you eat? How much? When? How did you feel? Has anyone heard a famous story or song about someone who ate too much? Read the story or teach the song "There Was An Old Lady Who Swallowed a Fly." What mistakes did the old lady make? [she ate too much at one time, she solved her overeating problem by eating even more, she ate only meat and no vegetables, fruits, or starches.] What mistakes have you made when you've overeaten? Change the stomach on your body outline to show how you felt when you've eaten too much. Now draw what your insides might have looked like with all of that food. Alternatively: show what foods are good to eat in a meal together (not as much fun, but a little more positive!).

Into the third dimension

Body tracings deal with the projected, flat shapes of our bodies, which are all different. Our three-dimensional shapes are even more unique. Explore three-dimensional body shapes through sculpture.

Body sculptures.

To challenge children to look at the three-dimensional shape of the body and not just its outline or surface, try a "pillowcase" cover-up. Make a "pillowcase" by sewing up one end of a four or five-foot length of stretchy tubular knit fabric (buy at a fabric store). Making two allows from more creative sculptures. Ask for volunteers to become a human statue. Place the "pillowcase" over the model's head (warn preschoolers that they won't be able to see and ask if that is OK before covering their heads). Ask the model to make three different shapes out of their body, then choose someone else to be a sculpture. Encourage them to stand, lie down, bend over, and most of all stretch—the fabric will stretch with them. When ideas slow down, ask them to create a slowly, constantly moving sculpture. Move to music of different tempos and rhythms. Let two children create sculptures together.

Clay body sculptures.

After some practice, children can record pillowcase sculptures in a lump of play dough, modeling or ceramic clay. Students can take turns being the sculpture model while the rest of the class molds them in clay. For inspiration, show children examples of Henry Moore's and Alberto Giocometti's sculptures of people (see following page). Next, look at figure sculptures from other periods and cultures (Rodin, Michelangelo and other Renaissance sculptors, or African and pre-Columbian figures, for example). *How are they the same? How do they differ?* Challenge students to change their sculptures to imitate the styles of these artists.

After your visit

Shadow play is an excellent way to focus "looking at you." Use the directions for the shadow screen in PCM's *Puppets* teacher's guide to create a panel for projecting real human shadows instead of puppets. Here are a few ways to inspire creative shadow play in the classroom:

Make a shape different than everyone else's.

Challenge students to take turns making a different shape than the ones made by the students before them.

Make a moving shape.

Ask students to take turns making a moving shape, but give them a spark:

- Make a shape that depicts a feeling word: scary, funny, mopey, happy, angry, powerful, weak, etc.

- Make the shape of an animal in motion and have other class members guess what it is.
- Create a series of moving shapes to the beat of music.
- Try a dance step or sing with your shadow dance.

Strike a silhouette pose.

Ask one student to strike a pose while the others draw the silhouette. Have the model change poses after a few minutes and the artists draw the new pose right over their first drawing. Change poses again—a third drawing gives an effect of motion.

Create a dramatic shadow play.

Use the directions given for puppet plays in the *Puppets* exhibit guide to develop a shadow skit performed with voices or in pantomime. Create a mood or "scenery" for the play with the lighting techniques below.

Add color to your shadow performances.

Create a different effect for your performance by coloring your light source:

- Use colored cellophane or gels over your light source.

- Use several models, lit by their own different colored light sources
- Use an overhead projector from behind the screen. Project marker drawings on transparencies and overlapped shapes cut out of colored plastic sheets.
- Use red, blue, and green gels over slide projector lenses or red, blue, and green spotlights as light sources. Place each color approximately three feet apart.

Videotape your shadow production.

For best results use a tripod and frame the picture so that only the screen can be seen.

Left: Henry Moore, Reclining Figure. *The Carnegie Museum of Art, Pittsburgh; Patrons Art Fund, 61.48.*

Right: Alberto Giacometti, Man Walking. *The Carnegie Museum of Art, Pittsburgh; Gift of Mr. and Mrs. G. David Thompson in memory of David Thompson.*

It's Stuffee inside (its stuffy inside you, too!)

What would Stuffee's x-ray look like?

Circulatory system

Write and **draw in red** the parts of Stuffee's circulatory system:

1.

2.

3.

Respiratory system

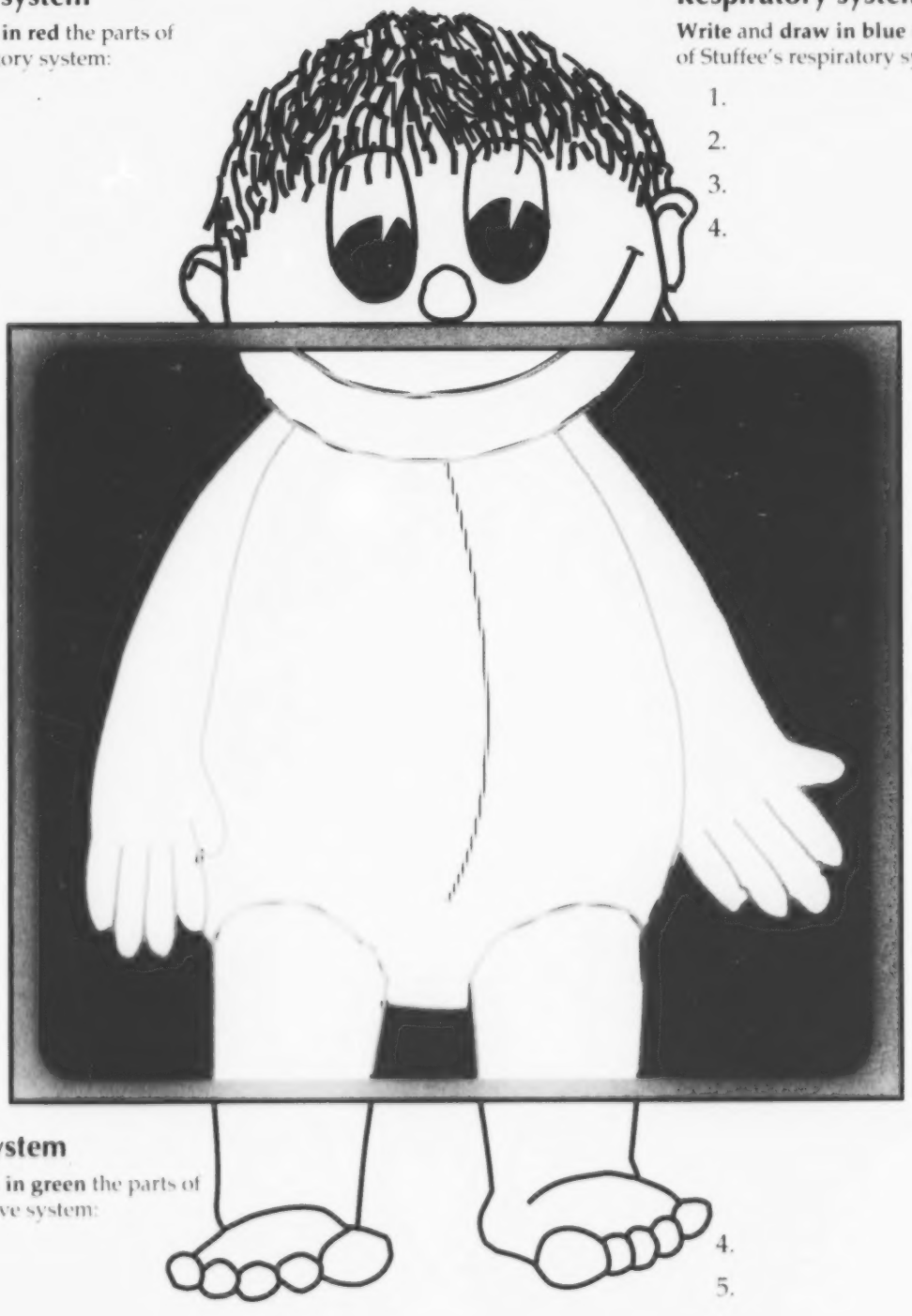
Write and **draw in blue** the parts of Stuffee's respiratory system:

1.

2.

3.

4.



Digestive system

Write and **draw in green** the parts of Stuffee's digestive system:

1.

2.

3.

4.

5.

6.

Stuffee

Before your visit

The emphasis of PCM's *Stuffee* exhibit goes further than just descriptive anatomy—the more important issue for preschoolers is feeling good about their bodies and how they are made so they can learn to take care of themselves. The intricacies of human anatomy are beyond the developmental level of preschoolers. They understand their outsides better, so begin with what they know: they know what goes in and what comes out of their bodies. *Stuffee* tells them what goes on in-between. A few children will pick up some of the anatomy; those who aren't ready will enjoy seeing *Stuffee's* parts, but relate better to his lunch. Discussion at the museum and in class can help preschoolers connect *Stuffee* and their own insides to the outside behaviors grown-ups are trying to teach them: why it's important to eat well, what does it mean to eat well, why we should wash our hands before meals, what things make the inside of your body dirty (smoky polluted air, germs), how the inside of your body cleans itself (sneezing and coughing are ways your body cleans out cold germs that get inside). Don't force the issue if a few preschoolers are afraid of *Stuffee*—one-on-one reassurance will help them until their imaginations mature enough to accept *Stuffee*. Point out that *Stuffee* is "pretend"—and that *they* are even more special because *their* parts work.

For older students who are better able to understand anatomy, *Stuffee* reinforces what they are learning in health and science by helping them make the connection to their own bodies.

During your visit

Using *Stuffee* as a reference, a museum staff member will lead your group through an interactive discussion of their bodies, noting that while we are quite different on the outside, we are all remarkably alike on the inside. The speaker will return to a few major concepts throughout the talk:

- What we have on the inside makes us work on the outside.
- Our insides are not frightening or embarrassing.
- Each of our organs does an important job.
- Our organs work together to do all the jobs that keep our bodies running.

The body systems and organs covered in the *Stuffee* presentation are:

1. Digestive system
   a. The organs of the alimentary canal: mouth, tongue, teeth, esophagus, stomach, small intestine, large intestine.
   b. Other organs that assist digestion: liver, gall bladder, pancreas.
2. Respiratory system: trachea (wind pipe), lungs, alveoli.
3. Circulatory system:
   a. Heart, arteries, veins, capillaries.
   b. Kidneys are really part of the excretory system, but are explained here because their job is to filter the blood and excrete waste materials into the bladder.

Time permitting, the presentation will include *Stuffee's* lunch to show how he keeps his body in healthy working order.

After your visit

Review what the children have learned about their insides. You may wish to schedule a performance of PCM's "The Adventures of Corporal Corpuscle" at your school.

It's *Stuffee* inside (p. 10).

Review *Stuffee's* body systems with an imaginary x-ray picture. Remind students how crowded it is inside *Stuffee's*—and every else's—body. Organs will overlap other organs and may be hard to keep straight. By using different colors for each body system, or overlaying different sheets of tracing paper for each system, they can keep the confusion to a minimum. You can make this worksheet into an overhead with overlays to review with the whole class together.

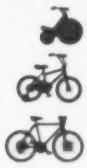
My personal robot (p. 13).

The human body is so incredibly talented and complex—just ask the engineers who labor to build computerized machines to do even one of the many things we can do: mechanical arms that can pick things up, robots that can walk around obstacles, computers that can understand speech. Ask students to design a robot to do the three things they dislike doing the most. Encourage them to think about all the parts of each job and all the abilities the robot would have to have to do each of those parts. Have them draw the outside of the robot on the worksheet and the insides of the robot on tracing paper laid on top of the worksheet.

Analyze your Amazing Anatomy (p. 14-15)...

...is a self-explanatory activity sheet of experiments children can do to get better acquainted with how they work. You may choose to do the activities as a class or send the sheet home to encourage family involvement. "Living Without" is a special section to raise student awareness of various disabilities.

Paper sculpture food feast.



Follow up on *Stuffee's* lunch by introducing students to the USDA's Food Guide Pyramid. Assign uneven sized groups of students to each of the food groups in the pyramid. Have each student make paper sculptures of a favorite food from their group. Remind them to include the many textures of the food—a sculpture is an unflat work of art. Display in a pyramid or a cornucopia—a Pop-Art cornucopia if you are also studying Andy Warhol—if you wish.

Food group scavenger hunt.

Give students a limited amount of time to collect pictures of food from magazines or bring in empty boxes, bottles, and cans. Sort into the food groups from the food pyramid. Have them choose from the class' food "stash" to create a paper plate meal that includes a healthy balance of foods.

Food for discussion.

How is *Stuffee* different than you and me? *Stuffee* is a special character loved by almost everyone who comes to The Pittsburgh Children's Museum. But as special as *Stuffee* is, we humans are even more special because we are alive. Ask students to name ways *Stuffee* or the robot they designed is different from real humans. The list of attributes of living things below and the exhibit *Hotspots* may help you lead this discussion.

What makes a body alive? Humans and other living things can...

...**move** from one position or place to another or their body parts can move inside.

...**respond**—sense and react—to changes inside or outside of their bodies.

...**grow**, producing new tissues faster than they use them up or wear them out.

...**reproduce** new beings just like themselves.

...**respire**, taking oxygen from the air or water, using it to burn up food, and getting rid of the waste gases that are given off in the process.

...**digest** food to change it into simpler forms its body parts can use.

...**absorb** digested food through its membranes into body fluids.

...**circulate** food, oxygen, water, and waste products through their bodies through fluids.

...**assimilate** food, oxygen, and water by changing them into other chemical forms it can use.

...**excrete** wastes produced by their body parts as they work.

Hotspots

Hot Spots can help you lead a discussion of the difference between living humans and Stuffee: Why does your hand make a pattern on the plastic? Why are you warm? Do you think Stuffee's hands would make *Hot Spots* work? Why isn't Stuffee warm? (warm-blooded creatures generate heat as they burn fuel—this is called *metabolism*)

Food Guide Pyramid
U. S. Department of Agriculture

Engineers are developing computerized machines—robots—that imitate our bodies.

- In the space below, **draw** your plan for a robot to do the three jobs that bug you most.
- On tracing paper, **draw** an x-ray of the robot's insides.

My robot's name is

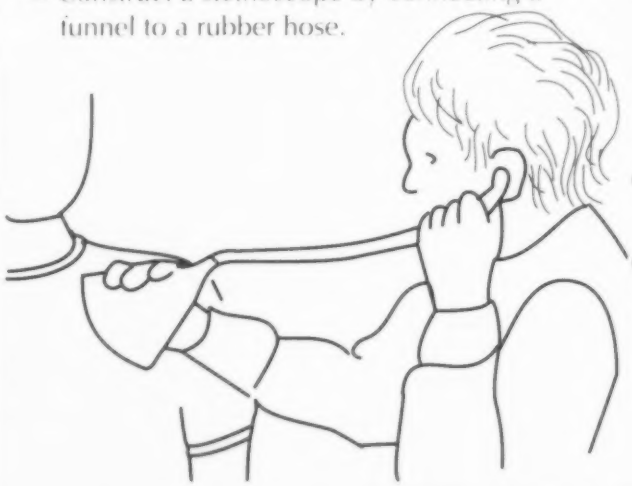
Analyze your Amazing Anatomy

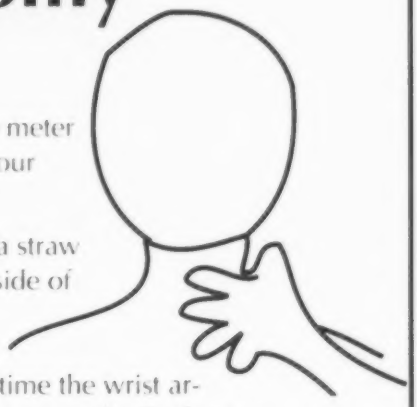
Amazing digestion

- Squeeze a tube of toothpaste or pastry tube to see how waves of muscle contractions (paristalic action) move food through the digestive system.
- Digestion starts in the mouth. Chew a piece of white bread and hold it in your mouth for five minutes. What happens?
- To see how stomach acids continue digesting food, place a bone in a jar of vinegar. Check it every day. What happens?
- Investigate: What happens when the kidneys fail? How does an artificial kidney work? What is diabetes? What can someone do to help prevent diabetes?

Amazing circulation

- Squeeze a tennis ball 70 times per minute. That's how hard your heart works!
- Construct a stethoscope by connecting a funnel to a rubber hose.





- Make a pulse meter to measure your pulse rate:
  - Place a soda straw across the inside of your wrist. The straw jiggles every time the wrist artery pulses, so count the jiggles per minute.
  - Anchor a toothpick in a small piece of clay and place it where the pulse is strongest pulse is on your wrist. Count the up and down movements.
- Chart the difference in pulse rates between children and adults; between resting and after a minute of jogging or jumping in place. How are body size, exercise, and pulse rate related? Test your hypothesis by taking the pulse rate of various sized pets.
- Use a mirror to observe blood vessels on the underside of your tongue. The thin blue lines are veins; the thick pink lines are capillaries. Pull down your lower eyelid for an even better view of capillaries.
- Examine a drop of blood under a microscope and identify the blood cells.
- Investigate: What happens during a heart attack? ...stroke? What is arteriosclerosis? What can we do to keep our hearts healthy?

Amazing respiration

- Measure with a tape measure around someone's chest when they have fully exhaled, then again when they have fully inhaled. What is the difference in the size?
- Take a very deep breath, then blow into a balloon to see how much air you breathe in and out in one breath.
- Pour a bag of regular air over a candle burning in a jar. Breathe "lung exhaust" into the bag, then pour the "exhaust" over the burning candle. What happens each time? What gas does the candle need to burn? What gases does the lung exhaust contain?
- Investigate: Is coughing good or bad? What is asthma, emphysema, and pneumonia? What happens to your lungs when you get a cold with bronchitis? What does smoking do to your lungs?

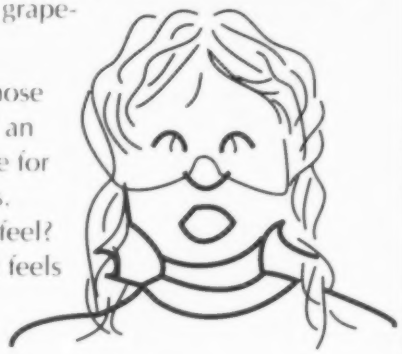
Amazing bones and muscles

- Cover your ears with your thumbs. Now squeeze your hands into fists. The "earthquake" sound you hear is the sound of muscle fibers at work.
- Measure yourself first thing when you get up in the morning. Measure yourself again right before bed. What happened? Why?

Living without

- On a weekend ask an adult's help to go about your regular activities blindfolded. Does your house seem as familiar as you thought it was? Ask someone to time you for fifteen minutes. Do you want to try longer? What are the hardest things to do?

- Balance on one foot while blindfolded.
- Have a friend throw you a ball ten times. How many times can you catch it? Cover one eye and try again. Now what is your score?
- Pour glasses of orange and grapefruit juices. Blindfold yourself and pinch your nose shut. Ask a friend to rearrange the glasses, then taste each and try to guess which is orange and which is grapefruit.



- Try wearing nose plugs for half an hour. Exercise for three minutes. How do you feel? This is how it feels to have allergies.
- After exercising, try breathing through a straw in your mouth. This is how it feels to have asthma.
- Have a friend tie your thumbs to your hands, then go about your everyday activities. What seems hardest to do? What is easier than you thought? Can you imagine living without your hands at all?

Why do I feel all thumbs without my thumbs??

Heart Works

In their ten–fifteen minute tour of *Heart Works* children role-play the blood and take an incredible trip as they are pumped through the heart and body. A museum staff member will take children through the blood's complicated never-ending cycle of picking up oxygen in the lungs, delivering it to the body, and exchanging it for carbon dioxide, and make the process understandable and fun.

Heart Works explains in three dimensions the following concepts that students may have learned in books or class:

- The heart, blood, and blood vessels make up the circulatory system.
- The heart is about as big as a fist and is located a little left of center in the chest.
- The heart is the strongest muscle in the body—it never stops pumping blood.
- Blood is the body's delivery system. Blood is pumped through the heart's four chambers and the body. It picks up oxygen at the lungs, delivers it to the body, takes away carbon dioxide, and gets rid of it back at the lungs on its next trip. Nutrients, antibodies, and hormones are also delivered to the body and other waste products, besides carbon dioxide, are eliminated when the blood goes through the liver and kidneys.
- Good health habits—sleep, good food, and especially exercise—are needed to keep the heart healthy.

For preschoolers, the basic message is that the heart is a pump that makes the blood flow and deliver good stuff (oxygen) and take away bad stuff (carbon dioxide). Older children will learn more about the four chambers of the heart.

Related reading

Burns, Marilyn. *Good for Me! All about Food in 32 Bites*. Boston: Little, Brown, and Company, 1978.

Caselli, Giovanni. *The Human Body and How it Works*. NY: Grosset & Dunlap, 1987.

Linda Allison. *Blood and Guts: A Working Guide to Your Own Insides*. Boston: Little, Brown, and Company, 1976.

Miller, Jonathan and Pelham, David. *The Human Body*. NY: The Viking Press, 1983.

Parker, Steve. *Skeleton: An Eye Witness Book*. NY: Alfred A. Knopf, 1988.

There Was an Old Lady (see p. 8)

There was an old lady, she swallowed a fly.
I don't know why she swallowed a fly.
Perhaps she'll die.
There was an old lady, she swallowed a spider.
It squirmed and wriggled and turned inside her.
She swallowed the spider to catch the fly.
I don't know why she swallowed a fly.
Perhaps she'll die.
There was an old lady, she swallowed a bird.
How absurd! She swallowed a bird.
She swallowed the bird to catch the spider,
She swallowed the spider to catch the fly.
I don't know why she swallowed a fly.
Perhaps she'll die.
There was an old lady, she swallowed a cat.
Think of that! She swallowed a cat.
She swallowed the cat to catch the bird.
She swallowed the bird to catch the spider,
She swallowed the spider to catch the fly.
I don't know why she swallowed a fly.
Perhaps she'll die.

There was an old lady, she swallowed a dog.
What a hog to swallow a dog!
She swallowed the dog to catch the cat,
She swallowed the cat to catch the bird.
She swallowed the bird to catch the spider,
She swallowed the spider to catch the fly.
I don't know why she swallowed a fly.
Perhaps she'll die.

There was an old lady, she swallowed a cow.
I don't know how she swallowed the cow.
She swallowed the cow to catch the dog.
She swallowed the dog to catch the cat,
She swallowed the cat to catch the bird.
She swallowed the bird to catch the spider,
She swallowed the spider to catch the fly.
I don't know why she swallowed a fly.
Perhaps she'll die.
There was an old lady, she swallowed a horse.
She died of course.
—Anonymous